



The



CHEMIST AND DRUGGIST

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MAY 4 1963

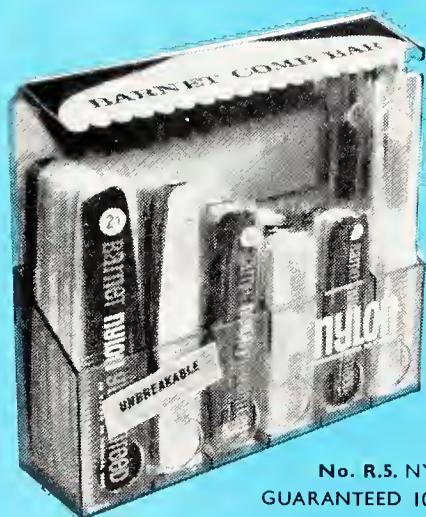
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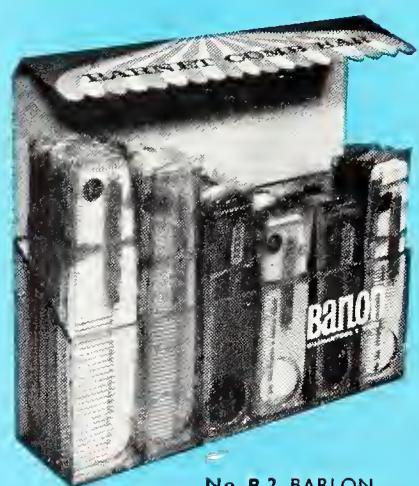




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		B.P.C.					B.P.C.			
		1/2 oz. . .	4/10	7d.			1/4 yd. . .	3/6	5d.	
		1 oz. . .	6/7	10d.			1/2 yd. . .	5/1	8d.	
		2 oz. . .	10/11	1/4			1 yd. . .	8/9	1/1	
		4 oz. . .	19/2	2/5			3 yd. . .	19/3	2/6	
		8 oz. . .	33/9	3/9			6 yd. . .	35/5	4/0	
		16 oz. . .	64/0	7/2			12 yd. . .	68/10	7/8	
		HOSPITAL COTTON WOOL								
		1 oz. . .	5/6	7 1/2d.			W.O.W. BANDAGES B.P.C.			
		2 oz. . .	8/10	1/1			In cartons. Individually wrapped.			
		4 oz. . .	14/11	1/10			1" x 3 yds.	2/3	3 1/2d.	
		8 oz. . .	25/3	2/10			1 1/2" x 4 yds.	3/8	5 1/2d.	
		16 oz. . .	47/0	5/3			2" x 4 yds.	4/6	7d.	
		PLAIN ABSORBENT LINT								
		B.P.C.					2 1/2" x 4 yds.	5/6	8d.	
		1/2 oz. . .	6/5	9d.			3" x 4 yds.	6/5	9 1/2d.	
		1 oz. . .	9/8	1/2			4" x 6 yds.	11/9	1/6	
		2 oz. . .	17/0	2/2			6" x 6 yds.	17/4	2/2	
		4 oz. . .	31/3	3/6			CREPE BANDAGES B.P.C.			
		8 oz. . .	58/3	6/6			5 yds. stretched			
		16 oz. . .	112/6	12/6			2"	19/3	2/2	
		BORIC ACID LINT B.P.C.								
		1/2 oz. . .	6/8	10d.			2 1/2"	23/5	2/7	
		1 oz. . .	10/3	1/4			3"	27/11	3/2	
		2 oz. . .	18/3	2/3			3 1/2"	32/1	3/7	
		4 oz. . .	33/9	3/9			4"	36/4	4/1	
		8 oz. . .	63/0	7/0			5"	45/8	5/0	
		16 oz. . .	123/0	13/9			6"	54/5	6/0	
		MULTIPLE PACK DRESSINGS								
		B.P.C.					No. 1	26/11	3/10	
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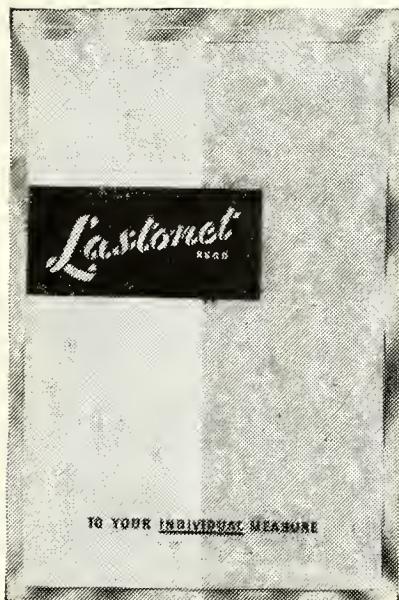
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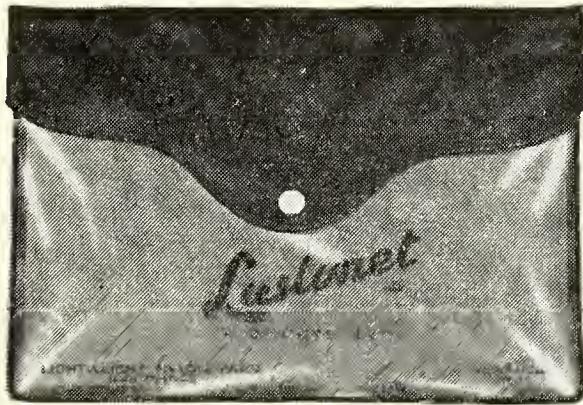
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THE CHEMIST AND DRUGGIST

ESTABLISHED 1859

THE WEEKLY NEWSPAPER FOR PHARMACY
and all sections of the drug, pharmaceutical,
fine chemical, cosmetic, and allied industries

*Official organ of the Pharmaceutical Society of Ireland
and of the Pharmaceutical Society of Northern Ireland*

Volume 179

May 4, 1963

No. 4342

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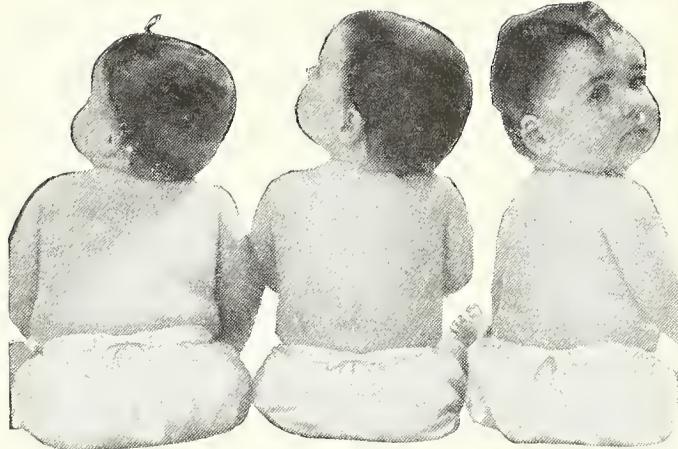
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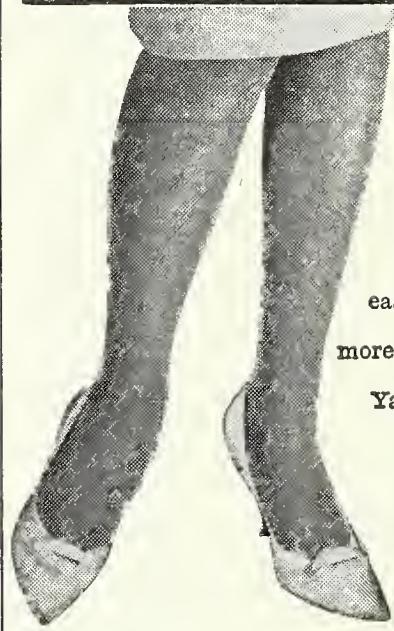
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The CHEMIST AND DRUGGIST

Volume 179

MAY 4, 1963

No. 4342

Nielsen Drug Index

INCREASE IN N.H.S. PAYMENTS

A NOTICEABLE increase in the volume of N.H.S. payments during January and February is reported by the Nielsen Drug Index. During that period the average weekly turnover by retail chemists in Great Britain totalled £5,407,000, an increase of 5.6 per cent. over the corresponding period of the previous year. Cash sales were only 3 per cent. higher. The Nielsen Retailer Report states that "the increase in cash sales was most noticeable in large independents and it is perhaps a little strange, having regard for the fact that the weather conditions curtailed shopping visits to the High Street, to find that only small independents suffered a percentage drop from their year ago figures. . . . As a result of the marked increase in N.H.S. payments, all independents received just over 38 per cent. of their turnover from this source during the period under review, whilst multiples took just under 31 per cent." The average weekly cash sales in retail pharmacies were:—Multiples, £359; large independents, £312; medium independents, £169; small independents, £86. Compared with the corresponding figures in 1962 multiples and independents showed increases of 3 per cent. It was estimated that multiple pharmacies obtained 37.4 per cent. of the total turnover during the period, whilst the large, medium and small independents obtained 26.3, 20.1 and 16.2 per cent. respectively. The average weekly National Health Service payments per shop were:—Multiples, £166; medium independents, £119; and small independents, £71. During January independent pharmacies dispensed 66.2 per cent. of the National Health Service prescriptions (an average of 1,150 per shop per month) whilst the multiple pharmacies dispensed 31.6 per cent. (an average of 1,621 per shop per month). National Health Service payments amounted to 30.7 per cent. of the total turnover in multiple pharmacies and 38.1 per cent. in independents.

Displaced Traders

DEPUTATION TO MINISTRY

REPRESENTATIVES of the National Chamber of Trade, National Pharmaceutical Union and Leicester Central Area Traders' Association were included in a deputation led by Mr. Raymond Gower (M.P. for Barry) to the Ministry of Housing and Local Government on April 24. The deputation made representations on the problem of

traders displaced by schemes of town-centre development. Received by Mr. F. Corfield (Joint Parliamentary Secretary), the deputation asked for changes in the law relating to both compensation and reinstatement of traders displaced by redevelopment schemes. Members stressed that redevelopment, while they recognised its need in many towns, and modernisation, should not be brought about at the expense of local traders. Replying to the arguments, Mr. Corfield said he appreciated that such matters caused concern, often material difficulties, and in some circumstances a sense of hardship. He suggested that what was needed was not changes in the law but a sympathetic and practical approach to that aspect of redevelopment. The Minister, he said, intended to issue further guidance to local authorities on the subject, and would stress the importance, in all town centre redevelopment schemes, of making suitable provision for both large and small traders, and of dealing sympathetically with problems.

Forged Prescriptions

ACTING CHIEF CONSTABLE'S SUGGESTIONS

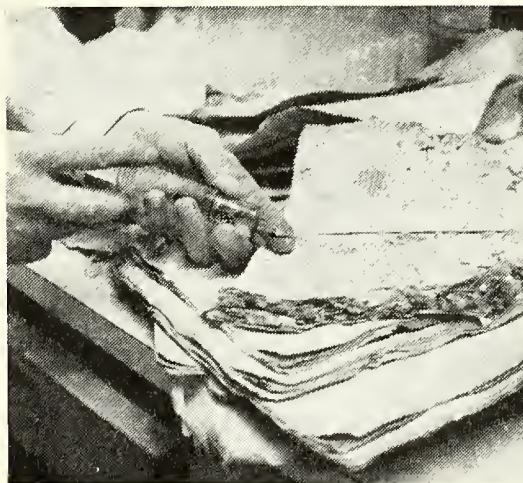
A SUGGESTION that the amount of a drug to be supplied on a prescription should be written by the doctor both in numbers and words was made recently by the acting chief constable of Glamorgan (Mr. E. R. Baker) in a letter to the Glamorgan Executive Council. Mr. Baker suggested that it would be a means of reducing the num-

ber of forged-prescription offences. Chemists could ask customers to write their names and addresses on the backs of prescription forms to help trace, and to discourage, forgers. The Executive Council has asked the Pharmaceutical Committee to consider the matter, and has suggested to Mr. Baker that he should consult the Home Office on the legal aspects.

Advanced Photography

KODAK SCHOLARSHIPS 1963

KODAK, Ltd., are awarding, for the fifth successive year, six scholarships in advanced photography. The successful students are being enabled to attend a full-time advanced course in photography at any institution which, in the opinion of the selection panel, can give the required tuition. The scholarships are open only to British subjects, resident in Great Britain or Northern Ireland, who intend to practise or teach photography in Britain, and who are not more than thirty years old. The final selection is being made by a panel comprising a representative from the Ministry of Education and members of the City and Guilds of London Institute, the Institute of British Photographers and the Association of Principals of Technical Institutions. The awards cover all course fees, cost of approved text-books and necessary materials, and a living allowance of £400 for the year, payable in instalments each term in advance. Application forms may be obtained from the



VITAMIN TONIC FOR JADED BOOKS: One of the methods used by the Italian Institute of Scientific Book Restoration is to inject nicotinamide to arrest ageing in pages that are becoming brittle and fragmented. Right: A book in need of restoration is examined microscopically to assess the likely success of the operation. Left: The vitamin is then administered with an hypodermic needle. The injection is only the first stage in a patient job that involves identifying and replacing broken fragments.



secretary, Kodak, Ltd., Kodak House, Kingsway, London, W.C.2, or from any branch of the company. Closing date for applications is June 30.

Agricultural Chemicals

MORE APPROVED PRODUCTS

THE Agricultural Departments of the United Kingdom announce that the following products have been approved under the Agricultural Chemicals Approval Scheme:—

Insecticides

ALDRIN DUST: Soildrin (Pan Britannica Industries, Ltd.).

MALATHION LIQUID FORMULATIONS: Mi-Dox 60 per cent. Malathion (Midox Agricultural Division, Rentokil Laboratories, Ltd.).

Fungicides

COPPER SOLUBLE POWDER FORMULATIONS: For the treatment of soil to prevent damping-off of seedlings, P.B.I. Cheshunt Compound (Pan Britannica Industries, Ltd.).

Herbicides

2,4-DB WITH MCPA POTASSIUM AND SODIUM SALT FORMULATIONS: Mirvale Undersown D (Mirvale Chemical Co., Ltd.).

DICHLORPROP LIQUID FORMULATIONS: Clean-aeres 2,4-DP (Clean-aeres, Ltd.), Mirvale Dichlorprop (Mirvale Chemical Co., Ltd.).

MECOPROP WITH FENOPROP: A mixture of trans-

located herbicides for post-emergence use in cereals to control a range of broad-leaved annual and perennial weeds.

POTASSIUM SALT FORMULATIONS: Longmates Meepon (E. C. Longmates, Ltd.).

N.P.U. Executive

NEW OFFICERS ANNOUNCED

MR. C. H. Smith has been appointed Chairman of the National Pharmaceutical Union Executive Committee; Mr. J. O. Bond Vice-chairman, and Mr. W. J. Tristram Treasurer. Other appointments, made at the April meeting of the Executive, are as follows:

Accounts Committee, T. G. Anwyl, E. A. Broeklehurst, H. B. Coulson, J. E. Davey, T. Heseltine, A. Howells, C. Orrell, W. J. Tristram, C. H. Smith (*ex-officio*), J. O. Bond (*ex-officio*), *Business Services Committee*, A. Aldington, G. T. M. David, C. Jacobs, H. G. Moss, J. Reed, W. T. Rees, H. Steinman, J. C. N. Wilford, C. H. Smith (*ex-officio*), J. O. Bond (*ex-officio*), *Marketing Policy Committee*, A. Aldington, G. T. M. David, C. Jacobs, H. G. Moss, J. Reed, W. T. Rees, H. Steinman, J. C. N. Wilford, C. H. Smith (*ex-officio*), J. O. Bond (*ex-officio*), *Publications Committee*, T. G. Anwyl, E. A. Broeklehurst, H. B. Coulson, J. E. Davey, T. Heseltine, A. Howells, C. Orrell, W. J. Tristram, C. H. Smith (*ex-officio*), J. O. Bond (*ex-officio*), *Representatives on Staff Side Committee* "A," Pharmaceutical Whitley Council, A. Aldington, J. O. Bond, G. T. M. David, A. Howells, H. G. Moss, W. T. Rees, H. Steinman, *Pharmaceutical Society Joint Committee (Liaison Committee)*, Chairman, C. H. Smith, Vice-chairman, J. O. Bond, Treasurer, W. J. Tristram, Secretary, J. Wright, *Representatives on Joint Industrial Council for Retail Pharmacy (Employers' Side)*, A. Aldington, H. B. Coulson, T. Heseltine, A. Howells, H. G. Moss, *Central National Health Service (Chemist Contractors) Committee*, A. Aldington, J. O. Bond, H. B. Coulson, G. T. M. David, A. Howells, C. Jacobs, H. G. Moss, C. Orrell, W. T. Rees, C. H. Smith, H. Steinman, *Deputies*, E. A. Broeklehurst, T. Heseltine, T. G. Anwyl. *Representatives of other organisations are:—Company Chemists' Association, Ltd.*: Mr. R. W. Gillham, Mr. D. E. Sparshott, *Co-operative Chemists' Union, Ltd.*: Mr. H. Warburton. A standing invitation is extended to Mr. F. W. Adams (a secretary and registrar, Pharmaceutical Society) to attend all meetings of the Committee.

Plastics Exhibition

INTERNATIONAL EVENT IN LONDON

OVER 400 firms, representing the plastics industries of the world are to take part in Interplas 63—the largest exhibition of plastics materials, machinery and finished products ever staged in Britain. The event will take place at Olympia, London, June 12-22, at the close of the plastics centenary year. Running simultaneously with Interplas 63, will be a convention open to all visitors to the exhibition, and addressed by leading authorities on subjects of importance to the plastics industry.

IRISH NEWS

THE REPUBLIC

New Fees

"NOT UNREASONABLE" SAYS THE WEST

THAT the Pharmaceutical Society of Ireland's new scales of fees were not unreasonable was agreed by pharmacists attending a meeting of the West of Ireland's Chemists' Association at Roscommon on April 21. Mr. P. Cassidy, Balla, presided. The meeting also agreed that local associations throughout the country should hold meetings to discuss problems likely to arise if changes were made in the existing administration of the health services. A suggestion was made that the secretary of the Irish Drug Association (Mr. B. R. Smith) should indicate in the I.D.A. index all regulations controlling the sale of poisons. Mr. Smith undertook to have the proposal examined by the I.D.A. committee.

IRISH BREVITIES

THE NORTH

PRESCRIPTIONS dispensed in Northern Ireland during January numbered 632,337 (443,791 forms). Total cost was £336,695 (£273,057 net), an average of 127.79d. per prescription (103.64d. net).

THE REPUBLIC

THIEVES who broke into the lock-up pharmacy of Mr. J. Nolan, Ludlow Street, Navan, on the night of April 17, stole a camera and tripod.

A MEETING of retail chemists is being held in Jury's hotel, Dublin, at 8 p.m. on May 14, to consider the establishment of an Irish retail chemists' cosmetics association.

Practical Training

It was reported that the Council had accepted the Executive's recommendation that no alterations should be made in the Regulations regarding practical training until the Robbins Committee [on Higher Education] had reported.

MR. H. P. TAIT suggested that it would be helpful if "Notes for Apprentice-Masters" could be brought up-to-date for post-graduate trainees. In the ensuing discussion the attitude of the trainee to the pharmacist and *vice versa* was criticised. MR. MACKAY offered to discuss that with pharmacists who had recently trained post-graduate students and report to the Executive when

the survey was completed. Meanwhile it was agreed that Mr. Tait's suggestion not be proceeded with until Mr. Mackay had been able to complete his discussions and reported.

It was reported that the Council had decided that the Practical Examinations for Part II of the Qualifying Examination in September would be held in Edinburgh only. DR. MACMORRAN reported that he had received no adverse comments from Executive members on the draft memorandum on the proposed drug-testing scheme that was sent to them. The memorandum had been forwarded to the Scottish Home and Health Department but so far had been only acknowledged. The memorandum had been submitted to the Council's public services committee at its last meeting, and the secretary and registrar (Mr. F. W. Adams) and Dr. MacMorran had been asked to discuss the proposals with the secretary of the Pharmaceutical General Council (Scotland).

The RESIDENT SECRETARY also reported that the Executive's evidence had been submitted to the Scottish Committee on Hospital Pharmaceutical Service and that it would receive detailed attention later.

Attention was drawn to the final report of Lord Cohen's Committee on the Safety of Drugs and to the "note of dissent" of Sir Hugh Linstead and Mr. J. B. Grosset. The Executive unanimously agreed that the following resolution be sent to the Scottish Home and Health Department and announced to the Press:—

That the Executive of the Scottish Department wholeheartedly endorsed the views expressed by Sir Hugh Linstead and Mr. J. B. Grosset in their note of dissent to the final report of the Joint Subcommittee on the Safety of Drugs.

NEWS IN BRIEF

THE Army School of Dispensing, at present centred in the Aldershot area, is moving to Colchester in July.

LEEDS Regional Hospital Board has approved plans for a new pharmacy for Victoria Hospital, Keighley, Yorks. Estimated cost is £23,000.

THE Council of Ministers of the European Economic Community have approved an appropriation of \$1.5 million for the Food and Agricultural Organisation of the United Nations' campaign against an African type of foot-and-mouth disease.

THE Ministry of Agriculture, Fisheries and Food has issued a booklet, Precautionary Measures, 1962, Fumigation with the Liquid Fumigants Carbon Tetrachloride, Ethylene Dichloride and Ethylene Dibromide (H.M. Stationery Office, price 1s.).

A SURPLUS of £539, reported in the balance sheet of the local committee, British Pharmaceutical Conference, 1962, is being transferred to a trust fund to be administered—at the discretion of the trustees—for the advancement of pharmaceutical education on Merseyside.

FIRST International Epileptic Children's Art Exhibition (about 200 paintings from six countries) is being held at the South London Art Gallery, Peckham Road, London, S.E.5, until May 18. An "Epilepsy Week," organised by the British Epilepsy Association, 27 Nassau Street, London, W.1, is being held from May 12 to May 18, and includes local open days, film shows and exhibitions in hospitals and public libraries.

THE Minister of Agriculture has approved the following chemical agents under the Milk and Dairies (General) Regulations, 1959:—Ceelox dairy steriliser (Ceelox Products, Ellesmere, Shropshire); Davies hypochlorite (Noel Davies & Co., Ltd., Holyhead Road, Chirk, nr. Wrexham); Mikro-Bac (Soilax, Ltd., North House, 31 North Street, Carshalton, Surrey); Dellarinse (Delsanex, Ltd., Fenner Works, Great Yarmouth); Biodene (Nutrikem, Ltd., Dalton, Thirsk, Yorks).

SPORT

Golf.—IRISH CHEMISTS' GOLFING SOCIETY. Over forty players participated in the outing to Baltray on April 24. Results: Stapleford competitions; Class 1, J. Smyth (12), 40 points; T. J. Lynch (9), 40 points; B. R. Smith (8), 38 points, on second nine, Class 2, K. Banks (14), 42; J. J. Dawson (15), 39; B. Cullen (18), 38.

MANCHESTER AND DISTRICT PHARMACEUTICAL GOLFING SOCIETY. The first meeting of the season was held at Blackley golf club on April 24. To celebrate his thirty years' membership of the Society, Mr. R. Demaine, Bolton, donated two prizes—one for players with over ten years' membership (which was won by Dr. J. Gourley) and one for members of ten years or less (won by Mr. W. Chadderton). A further prize, given by non-chemist members, and to be competed for by pharmacist members only, was won by the president (Mr. T. Williams).

LOCAL OFFICERS

PHARMACEUTICAL SOCIETY

PHARMACEUTICAL ASSOCIATION

South Shields.—Chairman, R. Wake; Treasurer, M. Gourley; Secretary, B. Rutherford, 53 Henderson Road, Simonside, South Shields, co. Durham.

TOPICAL REFLECTIONS

By Xrayser

Considered opinion

I think your observations (p. 445) on the comments of the Council of the Pharmaceutical Society concerning the report of the Committee on the General Practice of Pharmacy are fully justified. It must be some consolation to those who have studied the original report in detail that the Council have elicited, from comment and criticism, that the meaning of some parts of the document was not sufficiently clear. It will be noted that almost two years have passed since the report was first submitted to the Council, and that therefore the Council has had two distinct advantages in considering the whole matter. First, it has had comment from branches throughout the country, who have given the document close study. Secondly, it has had the inestimable advantage of time to digest the contents. It may be recalled that the secretary and registrar (Mr. F. W. Adams) gave an address on the report to the meeting of pharmacists at the British Pharmaceutical Conference meeting at Portsmouth in September 1961. Reporting to the October meeting of the Council in that year, the then president (Mr. H. S. Grainger) said that the discussion of the subject at the professional session had not been well informed, and had provided evidence that "the homework had not been adequately done." When one considers that the meeting in question was held within a few weeks of the Council's having received the report, one appreciates all the more the difficulties under which the delegates laboured at Portsmouth. The Council has not chosen to commit itself in public or in print until eighteen months or so after Mr. Grainger's strictures. But I really must not devote any more time to the matter now, for I have a great deal to do between now and May 22, when the amended report comes before the Branch Representatives. I must not again lay myself open to a charge of having neglected my homework. Incidentally I find that, in discussing the report in October 1961, I wrote that an earlier report, that of the Committee of Inquiry, was a model of clarity of expression, the present report being laboured by comparison.

Careers in pharmacy

The pages devoted to careers in pharmacy (pp. 447-55) make extremely interesting reading. If I were at that stage of my career in which I had to make a choice, I should probably decide to follow one or other of the paths leading to medical representation or pharmaceutical wholesaling, so attractively are the respective callings described by your contributors. But, in the light of a long experience, I know that I have shortcomings which would unfit me for either, so it is perhaps as well that the eloquent pleadings were not before me when I made my choice. The art of knocking on the medical door courteously but firmly would, I am afraid, have proved beyond me, resulting either in such a faint tap as to be inaudible or in a thunderous rat-tat that would have brought the occupant to the door in a fury. But the interesting thing is that we all find our niche, and each niche has its attractions according to the character and temperament of the individual. The outstanding feature is that the basic training is such that the really adaptable young man or woman can fit himself for any of the careers described in your pages. Each has its attractions, and each, no doubt, its darker moments, but that holds good for any occupation. The important thing is to take an interest and to go on learning. Pharmacy, like everything else, can be "fun," as Mr. Herdman has said, if the approach is sufficiently eager.

Practical training

It appears, from the report of the April meeting of the Council of the Pharmaceutical Society, that practical training is causing some difficulty. I am a little confused by the "concessions" mentioned by Mr. Grainger (p. 460) who stated that to allow a student to do pre-college training at all was in a sense a concession. I have read Regulation 6 without finding anything in it to suggest that pre-college training is a concession in any sense of the word.

Government, the Professions and the Industry

"CHANGED RELATIONSHIPS" CALL BY ASSOCIATION'S PRESIDENT

THE urgent need for changes in the relationships between Government, the professions and the pharmaceutical industry was the principal theme of THE PRESIDENT (Dr. D. E. Wheeler) at the annual dinner of the Association of the British Pharmaceutical Industry in London on April 24. Without it, the well-being and development of the National Health Service would be imperilled. Much consultation on matters affecting the industry had tended to be bilateral—Government with medical profession, Government with industry, industry with medical profession. Periodic informal discussions under the Minister's chairmanship, and with representatives of the Ministry of Health, Board of Trade, medical and allied professions and the industry present would be invaluable.

"A Variegated" Industry

Turning to the special problems of the industry, he stressed its variegated nature—family firms with century-old traditions, groups operating in twenty or more countries, and pharmaceutical units forming part of the giants of industry, and so on. At the raw materials end its roots were intertwined with parts of the chemical and other industries; at the other end it was bound up with a host of other products that had to do with the health or hygiene of man, beast or plant. Technical and professional skills, stemming originally from the apothecary and the pharmacist, had broadened to bring within the industry's ranks many more medical men, biologists, chemists, physicists, statisticians and chemical engineers than pharmacists. It had, in fact, the highest proportion of graduates engaged in research of any main sector of industry. The industry was one with a high and accelerating rate of innovation. The discovery and development of a major new drug called for such resources in kind and in money as were generally available only in industry. One problem was how to avoid the frustration a good research team felt when it was ready to go but met with some obstacle or delay unfounded in scientific purpose but expedient in the public interest.

The industry had not, until comparatively recently, been continuously involved with the general public issues of the day, and had not, hitherto, adequately developed its communications with the professions or with other persons and bodies having a legitimate interest in its performance. Nor had its relations with the organs of Government always been as close or as effective as they might have been. The industry recognised the need for changes in those respects.

"Two years ago," said Dr. Wheeler, addressing the Minister, "you reminded us of the conditions in which the National Health Service functions, where the doctor orders, the industry supplies, the patient consumes and the Minister pays." The National Health Service was one of the country's major national services and, as such, inevit-

ably in the centre of politics. Like the great majority of people in the country the industry believed the National Health Service to be an achievement for which Britain could justly take credit. Unfortunately early estimates of its cost had proved illusory. From that, more than from any other single factor, stemmed the over-emphasis on economy that had tended to dominate Parliamentary and public thinking and, consequently, Government outlook. Government and Parliament had yet to resolve the question how much of the nation's resources should be devoted to N.H.S., and how best the money could be spent. The industry could not but feel that, on health matters, the approach had hitherto been more doctrinaire than rational.

Professor Barna had pointed out that the shortfall in Britain's exports of manufactured goods in the past eight years corresponded to the extent the country had fallen behind in exports of the "most recently developed and technically advanced products." The pharmaceutical industry's products fitted just that description, and must accordingly play an ever-increasing part in building up exports. Recently Britain had been overtaken by Germany and Switzerland in the race for the No. 2 position in exports, after the U.S.A. The industry was not prepared to accept that as a long-term trend. He believed that, with reasonable support, it could keep in the running and reverse the trend.

Dr. Wheeler said that a major drug went through an average of five years of testing before it was released. Much of the basic information on the testing of drugs had been developed by industry and more fundamental knowledge on toxicity and safety was to be found in industry than anywhere else. The weakest link now in developing a new drug was its clinical evaluation. There was great need for the establishment of more chairs of clinical therapeutics. He hoped that the Government would consider favourably the provision of monies for that purpose: the industry was ready and willing to make supporting contributions.

Importance to Research and Exports

In his reply, THE MINISTER OF HEALTH (Mr. Enoch Powell) said it would be wrong to conclude that, in seeking the lowest reasonable prices for drugs he was oblivious of wider considerations. He was well aware of the importance of a vigorous and prosperous pharmaceutical industry, contributing to the advancement of medicine by a costly research programme, and to the nation's economy by a large export trade. The latest information about the volumes of research, exports and profit in the pharmaceutical industry did not suggest that anything he had done had reduced the industry to impotence or penury. He had, however, no sympathy with misrepresentations and even vilifications of the industry. Yet a Minister of Health who was in danger of

being mistaken for the industry's public relations officer would not be the industry's best friend.

Thalidomide had made 1962 a difficult year for the industry. The experience had taught lessons, some perhaps of lasting benefit. It had also aroused or confirmed public misapprehensions, one of which was that it could be in the interest of any pharmaceutical manufacturer to promote or market a drug whose toxicity and effects had not been subjected to the most effective and relevant tests that contemporary knowledge could suggest. The idea was, on crudest commercial grounds alone, absurd. That was why the Government had accepted Lord Cohen's subcommittee's report that the responsibility for laboratory testing of new drugs should remain with the individual manufacturer.

Another misapprehension was that it was possible to devise machinery, formal or informal, that would guarantee the safety of new drugs and their freedom from unsuspected qualities. It was not. The only way to get that guarantee was to stop medical progress and innovation altogether. "And even then we might not be safe." Safety itself was a relative term—relative to the nature of the disorder, the efficacy of the drug, the condition of the patient, and so on. Yet, whatever its basis, a Committee on the Safety of Drugs must operate in a manner to command itself to the good sense of the pharmaceutical industry. It was therefore of the highest importance that the industry, through the Association, had offered its co-operation and would be consulted in the working out of the details of the scheme. For that co-operation he expressed his appreciation.

Annual Report

The Association's annual report records that the value of annual exports of the industry exceeded £50 millions for the first time in 1962. Frustration continued to be felt that the Ministry's guidance on the prescribing of drugs within the National Health Service did not always give just weight to the consideration discussed by the Minister in his address to the Association in 1961 (that the relationship between the Government and the industry ought to be as nearly as possible on a customer-supplier basis). Expenditure on research during the year was at the record level of an estimated £10 millions. Reference is made to the formation of a Clinical Trials Advisory Committee consisting of the senior medical advisers to four companies with Professor W. J. H. Butterfield (Professor of Experimental Medicine, Guy's Hospital) as chairman.

The pharmaceutical industry has shared in the country's general stock-taking following the failure of the Brussels negotiations over membership of the European Economic Community. The fact that the industry is one of the most international of industries has enabled it to make good progress towards closer links with Europe.

LEGAL REPORTS

Indictment Quashed

A SUBMISSION that Dangerous Drugs Act, 1951 (Application) order, 1958 (S.I. 1958, No. 767) was beyond the legal powers provided by the Dangerous Drugs Act, 1951 was upheld by the recorder, Sir Anthony Hawke at the Old Bailey, London, on April 23. The case concerned Mr. Martin Bernstein, M.P.S., who was alleged to have illegally exported dextromoramide (Palfium) and Mr. Charles L. Woolmore and Dr. Helen M. G. Clark who were alleged to have aided and abetted him. Mr. A. P. Leggatt on behalf of Mr. Bernstein said that the power provided under the 1951 Act was contained in subsection 10 (2) as amended, which stated that if "it

appears to Her Majesty . . . that a new derivative of morphine or cocaine . . . or any other drug of whatever kind . . . is, or is likely to be, productive, if improperly used, of ill effects substantially of the same character . . . to those produced by morphine or cocaine . . ." then Her Majesty could declare that part of the Act should apply to the new derivative. He argued that to make an order under that subsection involved the consideration of whether the new derivative was likely to be productive of ill effects. In the order controlling the drug which was the subject of the indictment, the word "ill" before "effects" was not included. Mr. Leggatt therefore suggested that the power conferred, and limited by, the Act had not been shown to be correctly employed

because of the absence of the word "ill." In his ruling on the motion to quash the indictment the recorder said an order made in 1954 under the same Act had included the word "ill." On behalf of the Director of Public Prosecution it had been conceded that there had been a "slip up" in that the word "ill" had been left out in the 1958 order but he had submitted that it was perfectly clear that the conditions required by section 10 had been satisfied because in the one part of the order the words "ill effects" had been included. The recorder said that submission failed because the part that actually conferred the powers set out in the Dangerous Drugs Act did not contain the word which the Act required should be the test to be applied, and consequently, the order was *ultra vires* the Act and the indictment must accordingly be quashed.

IN PARLIAMENT

BY A MEMBER OF THE PRESS GALLERY, HOUSE OF COMMONS

THE value of cameras imported from Japan into the United Kingdom during 1962 was £1,065,426 against £17,711 in 1958. From East Germany the respective totals were £125,640 and £21,067. West Germany had sent the United Kingdom cameras to the value of £1,464,997 in 1962 compared with £1,236,273 in 1958. Those figures among others were given by MR. ALAN GREEN (Minister of State, Board of Trade) in a written reply to MR. H. BOARDMAN on April 23.

Drugs

SIR BARNETT JANNER asked the Minister of Health if he would ensure that all patients gave permission before new drugs were "tried on them." MR. BERNARD BRAINE (Joint Parliamentary Secretary, Ministry of Health) in a written reply on April 29 stated, "No."

Pesticide Residues in Food

MRS. J. S. BUTLER asked the Minister of Agriculture, Fisheries and Food how many prosecutions there had been under the Food and Drugs Act, 1955, concerning pesticide residues in food. MR. CHRISTOPHER SOAMES (Minister of Agriculture, Fisheries and Food) in a written answer on April 29 indicated that it would not be possible to provide the information without undue expenditure of time and labour.

Turnover Tax

In a written reply to MR. D. GIBSON-WATT on April 26, MR. R. MAUDLING (Chancellor of the Exchequer) said that Mr. H. A. Benson and Sir Donald MacDougall had accepted invitations to join Mr. Gordon Richardson as members of the turnover-tax inquiry committee. Secretary of the committee was Mr. E. A. Knight (Customs and Excise). Representations to the committee should be sent to the secretary, Turnover Tax Inquiry, Room 502, King's Beam House, Mark Lane, London, E.C.3.

Inter-departmental Working Party

MR. K. ROBINSON asked the Minister of Health when he had received the report of the inter-departmental working party on legislation concerning medicines; why the report had not been made public and if he would now pub-

lish it. MR. ENOCH POWELL (Minister of Health) in a written reply on April 29 stated that the study was completed in July 1962 and was not for publication.

DR. BARNETT STROSS asked the Minister of Health if he had studied the need for new legislation relating to medicines, and if he would bring forward legislation that would provide for the control of medicines being separated from the control of other substances and vested in the Minister of Health, the Secretary of State for Scotland and the Minister of Agriculture, Fisheries and Food. MR. POWELL in a written reply on April 29 merely referred to a previous reply given to Sir Thomas Moore when the publication of the report by the joint subcommittee on the Safety of Drugs was announced (see *C. & D.*, April 13, p. 386).

Diabetics

MR. J. DEMPSEY asked the Secretary of State for Scotland on April 24 if he would bring diabetic foods within the National Health Service, with a view to supplying them to diabetics at reduced prices. MR. MICHAEL NOBLE (Secretary of State for Scotland) said he had no power to arrange for the supply of foodstuffs under the National Health Service. He realised there were cases of hardship, but the National Assistance Board was ready to help where needed. MR. DEMPSEY then asked if the Secretary of State was aware that diabetic retirement pensioners requiring insulin, hypodermic needles, surgical spirits and cotton wool "paid 8s. prescription charges," and asked if he would abolish the charges. MR. NOBLE said he was aware of the situation. He had asked doctors to prescribe in quantities as large as possible so that the charges had to be met less frequently.

MR. A. WOODBURN asked if the Secretary of State knew that pharmaceutical chemists had reported a large number of people doing without certain items on prescriptions because they could not afford to pay for all the items, the patients asking the chemists which items they could do without. MR. NOBLE said that if such cases existed, they should be brought to the Minister's attention and reported to the proper authority for action.

COMPANY NEWS

Previous year's figures in parentheses

PAINES & BYRNE, LTD.—Messrs. K. G. Byrne and N. H. Martin have been appointed joint-managing directors.

FARBWERKE HOECHST, A.G.—Lists opened and closed on April 25 for a DM100 million 6 per cent. issue at par. The lists were oversubscribed immediately.

DIVERSEY (U.K.), LTD.—Mr. E. G. Hunt (previously general sales manager), has been appointed deputy managing director, and Mr. H. W. Cross (previously financial controller) joins the board as financial director.

E. R. SQUIBB & SONS, LTD.—Messrs. P. D. Peiser (general manager), F. M. Freeman, F.R.I.C. (production manager) and W. W. Heseltine, M.A., F.P.S., M.I.Biol., D.Opt. (director of clinical research) have been appointed to the board.

WRIGHT, LAYMAN & UMLEY, LTD.—A final dividend is recommended of 25 per cent., making 30 per cent., in addition to a distribution out of surplus on realisation of investments of 6½ per cent. tax free. For 1961 a total of 30 per cent. was paid plus a bonus of 5 per cent., both less tax.

MERCK & CO., INC., Rahway, New Jersey.—Consolidated net sales in the first quarter of 1963 were \$63,943,000 (\$58,914,000). Estimated net income after taxes rose 22 per cent. to \$8,595,000, equal to 80 cents per share of common stock (\$7,066,000, or 65 cents per share).

GILLETTE INDUSTRIES, LTD.—Mr. Willis C. Cooper has retired as a director and relinquishes the chairmanship of the board after nearly forty years' service with the company, including twenty-four as a director. Mr. Cecil Abberhalden (managing director) will continue, as in the past, to be the chief executive officer of the company.

UNITED STATES BORAX AND CHEMICAL CORPORATION.—Net income for the three months ended March 31 was \$1,819,880, equal to 40 cents per Common share (against 48 cents). For the six months ended March 31 net income was 60 cents per share

(compared with 83 cents in the same period last year). Sales for the March quarter increased to \$21,529,522 from \$18,926,088 and for the six months they were \$39,157,246 (\$34,954,368).

A. BOAKE ROBERTS & CO., LTD.—Mr. J. A. Dean has been appointed manager of the research and development department. Mr. E. E. Boake has been compelled by indifferent health to relinquish the post of manager, research and development department, which he has held since 1951. Mr. Boake continues as a director of A. Boake, Roberts & Co. (Holding) and A. Boake, Roberts & Co. and will undertake special duties as technical adviser to the chairman and managing director.

PFIZER GROUP.—Dr. J. K. Morrison has been appointed to the board of directors as research director. Dr. K. J. Lynes (a director of the group since 1958) has been appointed general manager of the chemicals division. Dr. W. A. Bullen has been appointed to the board of the chemicals division as marketing director. Mr. P. J. Platt (previously joint general manager, chemicals division) has been appointed director of industrial engineering, a new department formed to control industrial engineering within the group.

BUSINESS CHANGES

SMITH & NEPHEW RESEARCH, LTD., are removing to new premises at Gilston Park, Harlow, Essex.

MANSFIELD, SUTTON AND DISTRICT CO-OPERATIVE SOCIETY, LTD., have transferred their Stockwell Gate pharmacy to their central store in Queen Street, Mansfield, Notts.

CLAYTONS (CUMBERLAND), LTD., are closing their pharmacy at 37 King Street, Whitehaven, Cumberland, following the acquisition of the property by a multiple store adjoining. Mr. F. A. Clayton and his brother Edmund are retiring from business, but the third director, Mr. Tom Christie, who has

managed the King Street pharmacy for many years is to take over the business at 6 Tangier Street from Mr. Edmund Clayton.

PERSONALITIES

MISS JOAN GROSSET, daughter of Mr. J. B. Grosset (a member of the Pharmaceutical Society's Council) and a first-year medical student at St. Andrews University, Fife, was recently elected "Miss Charities" by the men students of the University. The students are attempting to raise £3,500 for charity. Miss Grosset is assistant treasurer of the University's students' representative council.

MR. RICHARD FOX, who is in charge of insulin manufacture at the Wellcome Chemical Works, Dartford, was interviewed by Franklin Engelmann in the B.B.C. "Down Your Way" programme on April 21. Mr. Fox, who joined Burroughs Wellcome & Co. forty-six years ago, recalled that he took part "as a comparative junior" in the intensive development work that began in 1923 after the discovery of insulin. Describing the method of extracting insulin, he said that 80,000 pancreas were used every week in his department.

MARRIAGES

HARPER—DURLING.—At Trinity Presbyterian church, Bangor, co. Down, Northern Ireland, on April 25, David Boyd Harper, M.P.S.N.I., 8 Gibson Park Gardens, Belfast, to Patricia Durling, M.P.S.N.I., 37 Rugby Avenue, Bangor.

DEATHS

BINNS.—Suddenly, on April 24, Mr. Sidney Richard Binns, M.P.S., Fairhaven, Tuel Lane, Sowerby Bridge, Yorks. Mr. Binns qualified in 1934. He was an active Freemason and a founder member of the Sowerby Bridge Rotary Club.

CROOKS.—On April 16, Mr. George McMellon Crooks, M.P.S., 4 Alma

Road, Shildon, co. Durham. Mr. Crooks qualified in 1915.

DEMPSEY.—On April 25, Mr. T. Spire Dempsey, who for twenty-two years was a representative of Laporte Chemicals, Ltd., Luton, retiring in 1959.

HEWLETT.—On April 21, Mr. Walter Ernest Hewlett, M.P.S., 50 Monks Road, Winchester, Hants. Mr. Hewlett qualified in 1920.

NOBLE.—On April 10, Mr. Charles Alfred Noble, M.P.S., 3 St. Margaret's Road, Edgware, Middlesex, Mr.

Noble, who qualified in 1899, was a member of the Pharmaceutical Society's Council, 1934-36. For over thirty-four years until his retirement in 1951 he was a member of the London Pharmaceutical Committee of which he was chairman in 1923 and again for four consecutive years from July 1941 to June 1945. During that time he also served as chairman of the London County Pharmaceutical War Committee. He was for fifteen years a deputy member and from 1943 a principal member of the Pharmaceutical Service Committee. He was a member of the London Executive Council, 1950-51.

PEARN.—Recently, Mr. Archibald Pearn, M.P.S., 10 Belmont Avenue, Guildford, Surrey. Mr. Pearn qualified in 1910.

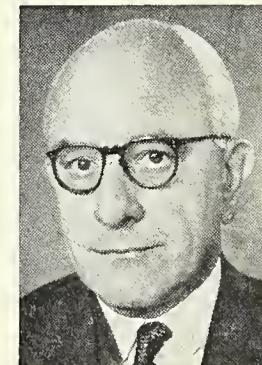
PILKINGTON.—Recently, Mr. John Arthur Pilkington, M.P.S., 3 Scarsdale Place, Market Place, Buxton, Derbyshire. Mr. Pilkington qualified in 1920 and carried on the business founded by his father, the late William Pilkington, Ph.C., in 1889. Mr. J. A. Pilkington was a Methodist local preacher and trustee of a number of Methodist churches.

CONTRIBUTORS TO INSULIN SYMPOSIUM

(See pages 487-505)

cently he had published *History of Pharmacy in Britain*, a work that has received approbation from many critics.

MR. L. J. DONNITHORNE, M.P.S., joined Burroughs Wellcome & Co. shortly after qualifying in 1931 and is now the manager of the buying division of the Wellcome Foundation, Ltd. In that capacity and also as chief buyer of pancreas glands for the British Insulin Manufacturers, he has visited many countries studying and reporting on collecting techniques and arranging contracts for pancreas and other raw materials.



MR. LESLIE G. MATTHEWS, M.M., F.P.S., who retired from the board of the Wellcome Foundation, Ltd., in 1960, is a former member of the committee of the British Insulin Manufacturers. A barrister-at-law (he was called to the Bar by the Middle Temple in 1954) he is also a distinguished pharmaceutical historian and antiquarian. A "profile" of Mr. Matthews was included in the *C. & D.* series "Figures in the Pharmaceutical World" (*C. & D.*, December 13, 1958, p. 633). Mr. Matthews has contributed a number of articles on historical topics to these columns and re-

MR. FRANK HARTLEY, B.Sc., Ph.D., F.R.I.C., F.P.S., dean of the School of Pharmacy, University of London, was for many years scientific services director of the British Drug Houses, Ltd. As such he was closely concerned with the technical problems relating to the production of insulin by the AB partnership, and was for some years chairman of the Technical Committee of the British Insulin Manufacturers. He was chairman of the British Pharmaceutical Conference, 1957, and has been a member of the British Pharmacopoeia Commission for the past ten years.



TRADE NOTES

Price Correction.—The retail price of Skels and Min-skels (Smith, Kendon, Ltd., 132 Borough High Street, London, S.E.1) is 2s. 5d. and not as given in the advertisement in this issue.

Now Perfumed.—Parke, Davis & Co., Ltd., Staines Road, Hounslow, Middlesex, announce the addition of perfume to Caladryl lotion and cream now being issued. Prices and packs are unchanged.

A Trio for Outdoor Comfort.—Tan-Glo sun-tan creme, a "follow-the-sun" preparation, Cetrimide cream and Calazeen cream (an antihistamine) are products of Arthur H. Cox & Co., Ltd., Brighton, Sussex, backed by attractive show material. Chemists are invited to send for samples.

For the Diabetic Counter.—In this issue SMITH, KENDON, LTD., 132 Borough High Street, London, S.E.1, draw attention to Skels sugarless pastilles and Min-skels peppermint-flavoured pastilles. A. WANDER, LTD., King's Langley, Herts, provide additional variety for the diabetic diet in the form of chocolate, drinking chocolate and biscuits. Fruit flavoured sugar-free pastilles are made by WARRICK BROS., LTD., Tile Hill, Coventry, and offered under the trade mark, Diafrutes.

Now Tax-free.—COATES & COOPER, LTD., Pyramid Works, West Drayton, Middlesex, have been advised that their speciality Hydratene is exempt from purchase tax. — CONTINENTAL LABORATORIES, LTD., 85 Church Road, Hove, 3, Sussex, state that the Commissioners of Customs and Excise have exempted Contax from purchase tax in all forms and packings. — MERCK SHARP & DOHME, LTD., Hoddesdon, Herts, announce that their anti-hypertensive speciality Aldomet is now exempt from purchase tax. — PARKE, DAVIS & CO., Staines Road, Hounslow, Middlesex, announce that their Cirotyl is now exempt from purchase tax.

Bonus Offers

W. B. CARTWRIGHT, LTD., Rawdon, Leeds. Moorland indigestion tablets. Packet of 40 free with order for display carton of 2 oz. single "20" rolls, plus 2½ per cent. discount on £2 10s., 5 per cent. on £5, 7½ per cent. on £7 10s. and 10 per cent. on £10 orders. Carriage paid on orders for £5 and over, assorted.

THE BRITISH DRUG HOUSES, LTD., Graham Street, London, N.1. Stride and Mycil powder, ointment and spray. Thirteen invoiced as twelve on order for 3 doz. or more Mycil powder or ointment, or an assortment, in complete dozens of each product; for 2 doz. or more Mycil spray; or for 3 doz. or more Stride. May 6 to June 21.

NICHOLAS PRODUCTS, LTD., 225 Bath Road, Slough, Bucks. Radox. Twelve invoiced as eleven. From May 6.

RADIOL CHEMICALS, LTD., 78 Upper Richmond Road, London, S.W.15. Aspellin, Radian or Radiol products (any combination and size). 10 per cent. summer display bonus on order value £3.

WARRICK BROS., LTD., Tile Hill, Coventry. Diafrutes. Thirteen invoiced as twelve on order for 3 doz.

NEW PRODUCTS AND PACKS

Diabetic Lager (Aleoholie).—Holsten Distributors, Ltd., 55 Farringdon Street, London, E.C.4, are agents for a German diabetic lager which they are distributing in Britain but which, being more alcoholic than ordinary lager, may only be sold by holders of beer licences.

Flatulene Treatment Tablets.—Berk Pharmaceuticals, Ltd., 8 Baker Street, London, W.1, announce the introduction of a new speciality Asilone-50 tablets for the treatment of flatulence, hyperacidity and related conditions. The tablets have been produced to meet a demand for an activated polymethylsiloxane preparation containing less of the active constituent than Asilone tablets 250 mgm. and suitable for maintenance therapy after a course of Asilone tablets. Each Asilone-50 tablet contains 50 mgm. of activated polymethylsiloxane in a sweetened absorbent base. The dosage does not, as with antacid tablets, require to be increased after continuous use. In fact it may, the makers state, be reduced to one or two 50-mgm. tablets daily.

Relief in Bronchospasm.—Eli Lilly & Co., Ltd., Basingstoke, Hants, have introduced a new speciality, Vortel brand isoprophenamine compound, claimed to provide a balanced approach to asthma treatment, and available as Pulvules or syrup. The product contains isoprophenamine (a sympathomimetic amine), ethomoxane (an adrenergic blocking agent) and thenylpyramine, the antihistamine available as Histadyl. The last-named has been incorporated in the product because it has been shown to potentiate the bronchodilator activity of isoprophenamine. Vortel is indicated in conditions in which bronchospasm is present in adults and children. It is especially valuable in relaxing spasm of the bronchioles in bronchial asthma, particularly in prophylactic control. When bronchospasm is secondary to infection of the respiratory tract, as in bronchitis, Vortel may be employed to supplement the usual treatment. The Pulvules are available in containers of 100 and 500 and the syrup in bottles of 4 and 16 fl. oz.

Bath Salts in Hand-painted Vase.—The Abietsan Mfg. Co., Ltd., Concordia Works, Carmichael Road, London, S.E.25, are offering concentrated perfumed bath salts in a new glass-stoppered glass jar of elegant double-convex shape, hand-painted with floral designs and suitable for subsequent use as flower vases.

Rose-scented Deodorant.—The new perfumed Sno-mist deodorant of J. C.



& J. Field, Ltd., 225 Bath Road, Slough, Bucks, is available as stick, spray and roll-on, each in a display outer containing one doz.

New Packs and a Competition.—New white packs have been produced for the medium and large sizes of Bu-to rose-scented hair-removing cream (the small size continues in the blue pack). When present stocks of de luxe Bu-to and leg Bu-to are exhausted they are being discontinued. The colour of Bu-to cream has been changed from white to pink. Each carton contains an entry form for a £1,000 prize competition open until September 30. Makers are Biometica, Ltd., Barnet By-pass, Boreham Wood, Herts.

New Lipstick Shades.—Three new ours—known as the "double-O killer" colours—have been added to the Angel Face lipstick range of Chesebrough-Pond's, Ltd., Victoria Road, London, N.W.10. The new colours are double-O-five (a warm peach); double-O-six (a pale apricot) and double-O-seven (a lightish pink). Double-O-five is carded with Angel Face "singing coral," double-O-six with Angel Face "mandarin gold" and double-O-seven with Angel Face "iced melon," so that customers buying one of the existing shades get a new shade free. Distribution should be complete by the end of May.

Low - Calorie Soft Drink.—Strathmore Springs, Ltd., Forfar, Scotland, have embarked on a campaign to promote their low-calorie soft drink Trim. Described as a sparkling sugar-free soft drink, Trim is specially prepared for diabetics and those on a restricted diet, and is issued in bottles of 6 and 26 oz. The low-calorie content of Trim (2.8 calories per fl. oz.) makes it ideal for inclusion in slimming diets.

Moth Proofer.—Racasan, Ltd., Ellesmere Port, Cheshire, are introducing what they describe as "a highly successful modern method of moth-proofing": Racasan Mothstrip. The product has enjoyed a wide sale in Europe for the past six years. It is manufactured in Sweden, and is initially being sold in Britain within the London television area.

Lightweight Elastic Stocking.—New Burson lightweight elastic stockings distributed by Fassett & Johnson, Ltd., 86 Clerkenwell Road, London, E.C.1, are stated to be indiscernible from regular stockings because of their fashion sheen. They are seamless and in a currently popular shade. They are claimed to provide all-round therapeutic or prophylactic support for pregnant or other women subject to varicose veins. Six sizes are in the range.

Hospital Pharmacists' Week-end School

(Concluded from THE CHEMIST AND DRUGGIST, April 27, p. 439)

THE Sunday morning session was given over to the consideration of the place of the pharmacist in hospital administration. MR. J. B. LLOYD (chief pharmacist, Manchester Royal Infirmary) dealt with pharmacy's place in the chain of command, which he said had never been well defined. The system under which the hospital service was administered provided no direct channel for the conveyance of pharmaceutical advice to the governing body. As a result, the pharmacist found it difficult, or even impossible, to ensure that his case was properly presented to those whose function it was to decide on policy and to allocate funds. In consequence the pharmacy department tended to be overlooked when priorities were determined. That disability had not gone unnoticed by those within the service. It was now becoming recognised outside. "Central Sterile Supply—Principles and Practice," published by the Nuffield Provincial Hospitals Trust, said:—

WHOEVER accepts responsibility for C.S.S.D. must be interested. He will be in competition with his colleagues for a share of funds for which the demand is always greater than the allocations. He will have to meet criticism and even opposition of staff whose views may be different from his own; he will have to ensure that funds are spent wisely for the benefits of patients and staff alike. It is unlikely that the pharmacist has the necessary standing to handle such situations successfully.

These hard words hurt all the more because they were substantially true.

The Nuffield Trust team had not expressed any doubts about the pharmacist's ability to accept responsibility for Central Sterile Supply. What was in doubt was his status in the hospital hierarchy, and therefore his ability to bring a major project to success.

An attempt must be made to rectify that position, and it was first necessary to decide upon a remedy.

A Precedent

The Nursing Committee might provide a suitable model. It was made up of members of the governing body, both lay and medical, with additional members, again both lay and medical, appointed by the governing body. The additional members were chosen for their special interest in nursing. The committee's function was to advise the governing body on nursing policy, and the matron or matrons attended in the capacity of officers and as expert advisers. Translated into pharmaceutical terms the Pharmaceutical Committee would consist of lay and medical members of the governing body, with additional members chosen because of their interest in pharmacy. The Group pharmacist and/or chief pharmacists would attend meetings as officers and expert advisors. A difficulty arose in choosing the additional members. It might be desirable to constitute the committee from members of the governing body. The United Manchester Hospitals had had such a committee since 1950. It had carried through a capital development programme exceeding £80,000 in value, and in recent years the Board had in-

creasingly sought its advice on pharmaceutical and para-pharmaceutical matters, and the committee had offered advice not sought. Committees did not normally reject without good reason the advice given by their officers.

Any alternative suggestion should ensure that pharmaceutical advice was conveyed direct to the policy-making body, and that no individual or committee should have power to add to or subtract from it during the course of its passage. The committee, however constituted, should have responsibility for all aspects of the pharmaceutical service. To limit its functions to the purchase of drugs and/or dressings gave the impression that the pharmacist was primarily concerned with supplies. Any proposal, must be compatible with the existing administrative structure of the service. The appointment of a Group pharmacist did not eliminate the necessity for a Pharmaceutical Committee. Even with "designated officer" status he could not initiate a discussion on an item not on the agenda.

Internal Administration

Administration within the pharmacy department was the subject of the second paper, which was by MR. N. BLACOW (chief pharmacist, Leeds General Infirmary). It was not, he said, the prerogative of chief pharmacists and their deputies—all hospital pharmacists must learn the subject, junior pharmacists at an early stage in their career so that they were efficient administrators when senior rank was reached. To be an administrator one did not require a desk or office. Administration, a science and an art, was management aimed at producing efficiency and economy. When learned it must be practised until proficiency was obtained. It required the making of decisions, which should be given only when all the facts for and against a case had been considered (there was no place for intuition or emotion). Precedents should not be ignored, but there must be certainty that the facts of the previous case were comparable.

Policy, plan and route to the objective must be mapped out, and it must be possible to convince critics that a course was both economical and efficient.

In a pharmaceutical department the main objectives of administration must be the supply of goods and a supply of information, all else being subordinate and contributory. The head of the department must decide the types of service he would provide and, within his responsibility, the method of providing them. Lack of experience in a particular branch of pharmaceutical practice should not be used as an argument to limit the service. Either a person experienced in the branch should be engaged or a senior member of the staff should be given study leave to learn the subject at another hospital. Next the department must claim the space, furnishings, mains services and equipment necessary for providing the facility. After its installation, work

study should be applied to secure maximum output for minimum effort.

Safety of machinery under common law requirements must be ensured, unqualified staff properly supervised, and appropriate checks made of preparations turned out. The general work plan should aim at completing the routine day-to-day work as early as possible, leaving plenty of time for dealing with emergencies.

In the provision of information, the department must keep itself up to date on drug stability, toxicity, solubility, dosage, etc. There should be much better exchange of information between pharmacists in different hospitals.

Work must be organised so that jobs were not done by pharmacists that could be done by technicians, and every department should have training and refresher periods for staff. The ability to concentrate being limited to about 1½ hours, short breaks should be provided to reduce errors and maintain output. If possible, staff should take part in developing new policies.

To maintain stocks efficiently, the department must consider shelf life, changes in medical staff, sales and advertising schemes of the makers and their competitors, time of year, clinical papers, the possibility of epidemics. (Made aware of those factors, what other hospital officer in his right mind would dare challenge the right of the pharmacist to buy drugs?)

Lines of communication should be clearly defined rather than allowed to evolve. In day to day matters information would be passed from section to section. In others the chief pharmacist would be the hub through which it passed, and young pharmacists in the department should acquire as early as possible the ability to write reports (possibly by suggesting methods of developing the section in which they were working). Reports should be factual, and arguments appropriate to the level at which they were being considered. Claims made by the department for space or equipment should clearly state capital and maintenance costs. A good written case was dependent for success on good typing, layout, etc.

Pharmacy Department "Open Days"

MR. G. O. MANNING, Lincs, said he had found it valuable to educate medical and nursing staffs on the work done in the department by holding a periodical "open day" for the staff. MR. BLACOW confirmed the value of the approach. He arranged that nursing recruits and medical students should tour the departments. MISS E. M. HIRST, Liverpool, said she found "communication" to her staff much improved after instituting weekly discussions on the week's work in the department. MR. P. CREE, Birmingham, said he made a point of demanding from manufacturers analytical data relating to newly launched pharmaceutical specialities. MISS HOWARD, Manchester, asked for supporting action in demanding prompt information about children's dosages.



N.H.S. Accounts 1961-62

DECREASE IN COST OF PHARMACEUTICAL SERVICES

PHARMACEUTICAL Services in England and Wales cost about £67 millions in 1961-62 compared with £72.5 millions in the previous year. These figures are given in the National Health Service Accounts 1961-62 England and Wales (H.M. Stationery Office, price 3s. 6d.). Payments to pharmacists for the supply and dispensing of drugs and appliances amounted to about £83 millions (£81 millions in 1960-61). The White Paper also provides the comparative net average in-patient costs for the main types

of £415,200 or 5.18 per cent. The gross sums due to chemists for dispensing prescriptions rose by £409,300 to £9,432,210. Although the number of prescriptions fell to approximately 20,792,000, the average gross cost was 107.34d. as against 22,289,000 prescriptions in 1960-61 at an average cost of 95.84d. The increase in the prescription charges payable by patients brought in additional revenue of £843,120. In his report the Auditor-General indicates that costs of maintaining in-patients in

Scotland ranged from £35 6s. 9d. per week in maternity teaching hospitals to £12 6s. 4d. in the "long stay" hospitals. An analysis of the weekly cost of £26 11s. 7d. of maintaining a patient in an acute hospital shows that salaries and wages accounted for £17 19s. 4d. Drugs, dressings and surgical appliances cost 18s. 5d., 8s. 7d. and 1s. respectively. Regional Hospital Boards spent £3,112,661 on drugs, dressings and instruments, etc., during 1961-62 compared with £2,790,329 in 1960-61.

SCOTLAND		ENGLAND AND WALES	
	£		£
1. Payments to pharmacists:—		1. To pharmacists (excluding rota fees):—	
(a) gross sums due	9,432,210	(a) for supply and dispensing of drugs and appliances ...	83,149,718
(b) less charges to patients ...	2,033,096	(b) Less net repayments ...	12,356
2. Payments for rota scheme ...			
3. Payments to medical practitioners for supply and dispensing of drugs, etc.:—			
(a) gross sums due	176,903	(c) Less charges to patients ...	19,512,437
(b) less charges	295		
4. Superannuation		2. To pharmacists for rota scheme	332,688
5. Provision of services at Health Centre:—		3. To medical practitioners for supply and dispensing of drugs and appliances, less charges, etc. ...	3,028,277
(a) Pharmacists' salaries, etc.	2,129	4. Superannuation contributions for medical practitioners	141,888
(b) Superannuation contributions (Council's share)	193		
(c) Cost of drugs and appliances	9,038	5. Less advances made to local Pharmaceutical Committees	719
		TOTAL ...	67,127,059
Breakdown of item 1 (a) above:—	£		
(i) Dispensing fees	1,716,000	(1) Payments to pharmacists (items 1 (a) and 2 above):—	£
(ii) Cost of drugs and appliances	6,027,000	(i) Dispensing and rota fees	13,367,000
(iii) Allowance for overheads and profit ...	1,525,000	(ii) Cost of drugs, appliances and containers ...	57,212,000
(iv) Container allowance	164,000	(iii) Allowance for overheads and profits ...	12,903,000
		(2) Special interim payments (item 1 (b) above):—	
		Repayments during year	73,841
		Less Issues during year to new contractors ...	61,485
		Net repayments	12,356
		Total amount of special interim payments outstanding at March 31, 1960	1,482,839

In addition to the charges reported at items 1 (b) and 3 (b) above, the following were also paid by patients:—(i) £29,054 collected by doctors; (ii) £3,339 paid by means of postage stamps; and (iii) £2,247 paid by patients at health centres.

of hospitals. These range from £32 13s. 2d. in children's acute hospitals to £8 2s. a week in psychiatric (mental subnormality) hospitals administered by Hospital Management Committees. In teaching hospitals the range extends from £43 11s. 4d. per week in orthopaedic hospitals to £14 18s. 3d. in the chronic hospital. A detailed analysis is given of the average weekly cost of maintaining an in-patient in an acute non-teaching hospital. Salaries and wages accounted for £13 7s. 2d. of the total of £29 19s. 9d. Drugs cost 19s. 2d., dressings 6s. 8d. and surgical appliances and equipment 19s. 1d. Indirect dispensary expenditure was 4s. 10d.

Scotland

The Summarised Accounts for Scotland are published separately (H.M. Stationery Office, price 2s. 6d.). There was a reduction in the cost to the Exchequer of the Pharmaceutical Services in Scotland, as compared with 1960-61,

SIR,—I think suppliers should get out of two deplorable habits:—(1) Coding invoices using reference numbers for goods instead of sizes or prices; (2) combining invoice and statement, or making the statement too small to be usable. The first makes it difficult to check the goods and the second either makes us return our records or write out another statement in order to pay through the National Pharmaceutical Union clearing house. My answer to both these faults is going to be deliberate withholding of payment for one month.

C. BROWER,
Portslade, Sussex

Support for Candidates

SIR,—On behalf of the Committee of the Liverpool and District Branch

of the Society and the Council of the Liverpool Chemists' Association, we wish to commend to all members of the Society the candidatures of Mr. J. Farrer Barnes and Mrs. Estelle Leigh (née Feeney) for the forthcoming Council elections. Over the years Mr. J. Farrer Barnes (a former member of Council) and Mrs. Leigh have been very active in pharmaceutical work and at all times have served the best interests of all engaged in pharmacy. Their combined experience covers the wide field of retail, hospital and industrial pharmacy and if elected we feel that their experience should prove of inestimable value to the Council in its deliberations.

A. L. SAUL, Chairman and President
W. G. FOWLER, Secretary,
Liverpool Branch and Association



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TELEGRAMS: "CHEMICUS ESTRAND, LONDON"

A "Major Medical Discovery"

THE fortieth anniversary of the first sale in Britain of the active secretion of the pancreas is a fitting opportunity to recount a story that has many inspiring facets. Quite rightly is insulin described by L. G. Matthews (p. 487) as "one of the major medical discoveries of all time," for without it the enjoyment of normal health would be impossible, as it was before Banting and Best's discovery, for the diabetic subject.

Many estimates have been made of the number of diabetics per thousand of population. They vary from country to country. In 1951 it was thought there might be 200,000 in the United Kingdom, of whom probably 60-70 per cent. were receiving insulin. That that figure was low has been shown by investigations carried out in selected areas of Bedford and Birmingham in 1962, when the number of diabetics, many unaware of their condition, proved to be much higher than had been thought possible. Perhaps as many as 2-4 per cent. of the population are affected, though a large number of them would need no form of treatment other than a well regulated diet. The formation of diabetic associations in many countries has come about by the mutual interest of diabetics anxious to help each other. An International Diabetic Association exists to co-ordinate the work of those national bodies, and attempts to ensure that the special interests of the diabetic community are recognised throughout the world.

The story is made fascinating at its commencement by the tenacity with which Banting followed through to success, with his co-worker, a quest prompted by his reading of the then available knowledge of the nature and causes of diabetes. At the stage of early commercial production in Britain it was the focus of a remarkable and possibly unique co-operative research effort by four manufacturers who were competing with one another in other fields. Even in selling insulin they have been functioning as three competitors, with so small an element of exploitation of their largely protected market that they attracted commendation from so unlikely an admirer as the Monopolies Commission. Since that report the insulin market has become even more competitive. One more manufacturer has satisfied the rigorous requirements of the Ministry of Health, and now holds a T.S.A. manufacturing licence in respect of insulin, and another company holds a licence to import Danish preparations.

Still within the lifetime of one of the two scientists who first successfully isolated the hormone from pancreatic extracts, the manufacture of insulin has undergone a number of changes, which are outlined by contributors on other pages of this issue. The fact that its cost to the user, in a world of increasing prices, is today lower than in 1939 is in itself remarkable. As he hands out the colour-coded carton the pharmacist may well reflect on the tremendous story of technical achievement its small bulk contains.

Students in Conference

WHEN the British Pharmaceutical Students' Association held its twenty-first annual conference in Glasgow recently (see p. 486), it proved itself to have come of age in more senses than one. Both the seriousness of the business sessions and the thoughtful discussions they engendered betokened a responsible, representative and enthusiastic student body from which any profession could take credit. Through the energy and talent of a series of executive officers, the Association appears now more firmly based than ever to take action for "the promotion of the welfare and interests of pharmaceutical students and the maintenance of pharmacy as a science and profession."

The B.P.S.A. came into being in 1942 as an outcome of widespread dissatisfaction with the Pharmaceutical Society's education policy. From an early membership of about 200, mostly located in the London area, it has grown steadily over the years, and now represents over 1,200 students in England, Wales and Scotland. The aim for the immediate future, firmly reiterated at the Glasgow conference, is "nothing less than 100 per cent. college membership."

The interest of delegates in examination syllabuses, and the new entrance requirements of the Pharmaceutical Society (see *C. & D.*, February 16, p. 159), were understandably dominant. Discussion of the pros and cons of adding A-level mathematics as an acceptable entrance subject was heated. The voting figures show that a majority of delegates were opposed to the new requirement, principally on the ground that it would be of only secondary value in reading for a pharmaceutical qualification, whereas the biological sciences, which as entrance requirements can be avoided, are vital. Nevertheless the new regulations found several devoted advocates.

Another strongly, and frequently, voiced view was that the "crammed" nature of modern pharmacy courses tended to produce "highly trained technologists but nothing else," and that courses must be revised to allocate time for "reading round" subjects, and for a more liberal education in the widest sense. A "Report on Liberal Studies" presented at the conference yielded much information on the extent of such courses (where they exist), and of the attitudes of the teaching staffs towards them. The production of the report may be looked upon as an additional proof of the growing maturity of the Association.

Offering our congratulations to B.P.S.A. on attaining its majority, we trust, with Mr. W. M. Darling (a member of Council) who gave the conference address this year, that it has now completely recovered from its growing pains and will continue to operate as a strong and capable adult, performing a very necessary and important function to the profession.



“OPEN SHOP”

AN UNSCRIPTED COMMENTARY ON THE
SPECIAL PROBLEMS OF THE PHARMACIST
IN RETAIL PHARMACY

E. C. TENNER

SO here we are, through April and into May and still waiting for settled warm dry weather. The Budget is now stale news and fortunately has not on this occasion cost us any loss or extra work this time, though, now that the Chancellor has twice broken the convention that purchase-tax changes are made only in the annual Budget, we must expect them at any time during the financial year, and when he catches us, we must, presumably, just grin and cut our losses.

Busy Time

Mid-April is also a busy time because during it we must carry out a great deal of unpaid book-keeping and record-making in connection with the annual returns of Pay-as-you-Earn and graduated pensions, quite apart from completing our income-tax returns for the year and balancing off our industrial spirit records. The month is rushing on towards a spate of negotiations, delegate conferences, annual meetings of the National Pharmaceutical Union and Pharmaceutical Society of Great Britain, and the Society's Council election. It is a pretty good sign of the great interest of members in questions involving the practice of pharmacy and the remuneration of the pharmacist that there are twenty-two candidates for the seven places vacant in the Society's Council.

The Root of the Trouble

At the bottom of all this pharmaceutical hustle and bustle is the firm conviction in pharmaceutical hearts that pharmacists are unfairly treated in the National Health Service, and the equally firm determination to change present unsatisfactory circumstances. Perhaps because we have, till now, been told so little, it has seemed, rightly or wrongly, that our N.P.U. representatives in the Central N.H.S. Committee have not fully appreciated the depth of our conviction and determination, and in some instances have even seemed to resent and resist them. However, there are now signs that our leaders have at long last realised that we are prepared and resolved to make even fundamental changes in order to strengthen our hand in dealing with the Minister of Health. The signs I refer to are, of course, the detailed facts now published about negotiations within and between the N.P.U., the Pharmaceutical Society, the Central N.H.S. (Chemist Contractors) Committee and the National Joint Industrial Council for Retail Pharmacy. Those facts concern us professionally and financially most deeply, and we cannot know too much about them. It is distinctly hopeful that our representatives are now realising that unity and strength must be based first on knowledge. It is also a fact that must be reckoned with that the Minister is, of course, aware what is the position between individual pharmacists, the N.P.U., the Company Chemists' Association and the Co-operative Union. He is not likely to be deceived into seeing any unity that does not exist; on the other hand he is most likely to use any actual, if unadmitted, weakness of our representatives against our interests. It is apparent that our interests are already regarded as those most easily exploited in order to pacify the parliamentary criticism that is continually calling for a reduction in the national medicines bill. So, hopefully, at Easter time, I congratulated our N.P.U. secretary Mr. Wright on U.L. 4/64, the memorandum dealing with representation of the Pharmaceutical Society on the Central N.H.S. (Chemists Contractors) Committee, and

its inclusion in the agenda for the Conference of representatives of Pharmaceutical Committees on May 1. As I read it, we are being asked what shall be our instructions to our representatives on the Central Committee, and, again as I read it, the original difficulty between the N.P.U. Executive Committee and the Pharmaceutical Society was the Society's inability to agree to be restricted to nominate only contractors to the Central Committee. Bearing in mind that the Society maintained its view that it must have complete freedom to make its nominations whether or not the nominees were contractors under the National Health Service, and to comply with expressed pharmaceutical opinion, the N.P.U. Executive recommended the Central N.H.S. Committee to accept two Council nominees to their Committee in place of two N.P.U. Executive Committee nominees. The Company Chemists' Association and the Co-operative Union representatives would not, however, agree to that (presumably because the Society would not bind itself only to nominate contractors). The N.P.U., because of its referendum, to which only 64 per cent. of possible replies were obtained, did not instruct its representatives to force the matter to a vote, when by virtue of the overwhelming majority of private contractors (11 to 3), the recommendation would of course have been passed. Now, in face of continued pressure of pharmaceutical opinion, it gives us the facts and places them before the Conference on May 1.

A Look at the Principle

So let us look into this *principle* of “contractors only on the Central Committee,” which must presumably be the reason that three company-chemist and Co-operative representatives in a committee of fourteen are in effect allowed to deny eleven representatives of the N.P.U. the right to cede two of their seats to nominees of the Pharmaceutical Society. If the contract concerned were a simple straightforward contract the principle would be unquestionable. But the contract is in fact greatly complicated by the Pharmacy and Poisons Act, 1933, and by the National Health Service Act itself. The Company Chemists' Association, the Co-operative Union and the N.P.U. all represent contractors only. Now contractors need not be registered pharmacists, but the contract cannot be carried out for five minutes in any pharmacy without the presence and personal supervision of a pharmacist registered by the Pharmaceutical Society. It is clear, therefore, that there is an important professional content to the contract which is not at present represented as such in the contractors' committee. That professional content can and ought to be represented by Pharmaceutical Society nominees and, if the Society were bound to nominate contractors only, the whole useful purpose of their nomination would be thrown away. So, for progress, it *must* be left open for the Society, in its wisdom, to nominate pharmacists who might not be contractors themselves but who might be employed by contractors as pharmacy managers or assistants. If two of the eleven N.P.U. nominees were replaced by two such Pharmaceutical Society nominees, contractors would still be represented by twelve (9 plus 3) nominees. I believe the Conference should tell its representatives to insist on the nomination of at least two and possibly more members of the Contractors Committee by the Pharmaceutical Society's Council. That would unite pharmacy behind the contractors' committee, which would then be properly representative of the contract.

NEW FILMS

"Working in Chemicals"

DISTILLERS CO., LTD., chemical division, Devonshire House, Mayfair Place, London, W.1. 16-mm. Colour. Sound. Running time 33 minutes.

MANY of the products of the organic chemicals industry are colourless inflammable liquids. They are produced in thousands of tons every year in plants representing a capital investment of many millions of pounds. The film illustrates the type of employment open to Arts and Science graduates in the chemical industry. It follows the progress of a script writer who visits the head office of a chemical firm and three of its factories making and marketing chemicals and carbon dioxide, and talks to people on the job.

Women of Tomorrow

CYNET FILMS for *Lilia-White (Sales), Ltd.*, Bessemer Road, Welwyn Garden City, Herts. 16-mm. Colour. Sound. Running time 10 minutes.

WHILE learning the physical facts of menstruation, young girls should also be given the right mental approach to it. The medical facts, the purpose of menstruation, and how it happens are explained in the film, which is directed to schoolgirls, but the part that menstruation plays in a woman's daily life is presented as something to be naturally accepted and not to worry about or upset routine. It concludes by explaining the use of sanitary garments and their correct disposal, and by giving advice on hygiene and diet during the period. Copies of the film are available on loan on application to the company's film library, Wilton Crescent, London, S.W.19.

Smoking and You

CENTRAL OFFICE OF INFORMATION (for the Ministries of Health and Education and the Scottish Home and Health and Education Departments). 16-mm. Colour. Sound. Running time 11 minutes.

AVAILABLE free from the Central Film Library, Government Building, Bromyard Avenue, London, W.3, the film is intended primarily for young people in the age group of eleven to sixteen. It shows by diagrams the irritant and destructive effects of cigarette smoking on the throat and lungs, presenting a dramatic illustration in the breathless and distressed state of two people who have been heavy smokers. A "smoking machine" demonstrates the amount of chemicals inhaled, and an animated sequence shows the parallel rises in volume of cigarette smoking and number of deaths from lung cancer since 1910, reaching the record figure of 26,383 lung-cancer deaths in 1962. Introducing the film, the Minister of Health (Mr. Enoch Powell) said that, in men, 37 per cent. of all cancer deaths were from lung cancer, and that the lung-cancer death rate had risen from 871 per million in 1961 to 895 per million in 1962. While, in women, only 7 per cent. of cancer deaths were from lung cancer, the rate had also risen (from 141 to 146 per million).

Pulmonary Function

HALAS & BACHELOR CARTOON FILMS, LTD., for *Boehringer Ingelheim, Ltd.*, Isleworth House, Great West Road, Isleworth, Middlesex. 16-mm. Colour. Sound. Running time 29 minutes.

ENTIRELY expository and "non-promotional" (no product of the company receives any mention) the film is normally shown to medical audiences by the company's own staff, but may be hired for showing to pharmaceutical audiences if desired. It is remarkable for its high proportion of diagrammatic representation to photography and for the skilful draughtsmanship and attractive colour of the diagrams. The live action takes place at Manchester Royal Infirmary under Dr. Robert Ollerenshaw, with the medical advice of Drs. J. B. L. Howell and T. B. Stretton (Manchester University department of medicine). The film shows patients with pulmonary tuberculosis, a bronchial carcinoma, bronchial asthma, contrasting the radiographic picture yet showing how disturbance of function dominates each. Normal pulmonary function and its measurement are described and the ways in which it may be disturbed are enumerated. The use of instruments in investigations of breathing abnormalities is explained. The film ends on the note that pulmonary function tests should not be considered laboratory procedures. "Their place is in clinical medicine."

Any Business Questions?

Is there any age limit for directors of companies?

UNDER the provision of Section 185 of the Companies Act 1948 a director must retire after he has reached the age of seventy unless his appointment has been approved by the company in general meeting after special notice has been given. It is possible to modify the requirement by suitable provision in the articles of the company, and that is usually done in the case of small private companies so that retirement at seventy is not necessary.

We would like to change the name of our company. Is there any special procedure please?

IT is possible to change the name of a company by passing a special resolution of the company. In general such a resolution requires to be passed by a majority of 75 per cent. of those present at the meeting and entitled to vote. Before proposing a resolution for that purpose it is necessary to obtain the consent of the Board of Trade to the new name. A new certificate of incorporation will be issued, and the new name must be shown on business letters and other official documents. It will also be necessary to change the company seal.

In a pamphlet "The Expansion of Exports" published recently by a group of back-bench Conservative M.P.'s, it is stated that there are "overwhelming arguments in favour of Britain's adopting an "added value tax."

Can you give some information as to how the tax would operate and its advantages or disadvantages compared with purchase tax?

THE suggested tax is essentially the French T.V.A. (*Taxe sur Valeur Ajouté*). Its champions in Britain argue that it would provide "material and psychological" incentives to export, and that it would have the advantage of being in line with the Common Market Commission's aims to harmonise tax systems among its members. Under the system each manufacturer or distributor pays tax on his total sales and claims a rebate equivalent to the tax already charged on his purchases of raw materials, capital equipment or resale stock. So tax is added at every stage along the line. The manner in which it is held by its advocates to work to the advantage of exporters is that no tax is added for goods exported, so that the exporter is able to claim a refund from the Government for the amount of tax already levied on his production. To get such a refund would be a psychological inducement to export more, it is argued. Under the present purchase tax system no tax is paid on exports and the manufacturer or distributor already buys the raw materials or finished goods tax-free. Under T.V.A. he first pays money out and must then await a rebate later. Purchase-tax in general and in many of its detailed applications have from time to time been criticised in this paper. One of its worst features, from the retailer's point of view, is that he stands the loss if the goods remain unsold or the tax rate goes down. However, it has the merit of being paid as a straight increase on the wholesaler's price and not to demand probes and verifications by Government agents at every stage of distribution from manufacturer through wholesaler to retailer.

A PHARMACIST'S ANTHOLOGY FATE AND PHYSIC

From "The Village," by George Crabbe

ANON, a figure enters, quaintly neat,
All pride and business, bustle and econeit;
With looks unalter'd by these scenes of woe,
With speed that, entering, speaks his haste to go,
He bids the gazing throng around him fly,
And carries fate and physies in his eye:
A potent quaek, long versed in human ills,
Who first insults the victim whom he kills;
Whose murd'rous hand a drowsy Beneh proteet,
And whose most tender mercy is negleet.
Paid by the parish for attendanee here,
He wears contempt upon his sapient sneer;
In haste he seeks the bed where Misery lies,
Impatience mark'd in his averted eyes;
And some habitual queries hurried o'er,
Without reply, he rushes on the door.

Changing Pattern of Pharmacy

2,000 PHARMACIES TO CLOSE IN THE NEXT TEN YEARS

TWO thousand pharmacies are likely to close down within the next ten years, said Mr. R. H. KEMP (assistant secretary, N.P.U.) when he addressed a joint meeting of the Somerset branches of the National Pharmaceutical Union and Pharmaceutical Society at Weston-super-Mare on March 21. Mr. Kemp's subject was "The Changing Pattern of Pharmacy." He first asked his audience to undertake the unpopular task of doing a little stock-taking—"not in the physical sense, but as a mental exercise." From the recent history of pharmacy, he said, a number of outstanding events came to mind. In 1908 the Pharmacy Act, by recognising limited liability companies as authorised sellers of poisons, altered the whole foundation of the calling. In 1911 the pharmacist became officially recognised as a dispenser of medicine. Out of the 1914-18 war came a resolution by the Council of the Pharmaceutical Society that had been "overlooked, forgotten and was almost unknown by a great number of pharmacists," namely the decision to grant special privileges to those who had served in the armed forces during the 1914-18 war. That resulted in a great increase in the number of registered pharmacists, and "that misplaced benevolence by the Council" had had repercussions that were still being felt today. In the mid-1920's to 1930's—the depression years—many pharmacists were glad to take employment at £2 10s. or £3 a week. Others, refusing to consider such low salaries, "scraped together £100 to £150 and opened a pharmacy of their own," often where there was little chance of making good. Many of those businesses were in existence today. The Pharmacy and Poisons Act, 1933, introduced compulsory registration of members and premises. Around 1938, competition in retail distribution became acute, with prices at their lowest possible level and all retailers were fighting for the last ounce of turnover. 1935 saw the introduction of the Chemists Federation movement. The next stage, the 1939-45 war, brought the problems of the Pharmaceutical War Committees and of rationing. In 1948 the National Health Service Act changed completely the business of every pharmacist. Later the Restrictive Practices Act, 1954, brought about the demise of the Chemists Federation.

Current Conditions

Today retail chemists were experiencing competition from many sources, including supermarkets and department stores. There was also evidence of price cutting. Specialist businesses for photographic, toiletries had been established. Also important was the development of ladies' hairdressing establishments. Grocers were now responsible for 64.4 per cent. of packaged sales of dentifrices (62.8 per cent. of the sterling value), whereas the figures for chemists were only 34.6 and 37.2 per cent. In toilet soaps, grocers were selling 84.5 per cent. of the packs, or 80 per cent. of the cash value, chemists 15.5 and 20

per cent. Grocers had attained 51 per cent. of the shampoo market (43.6 per cent. of the sterling value), and chemists were obtaining 48.3 per cent. and 56.4 per cent. respectively. The figures demonstrated what chemists were losing and indicated the future potential trading.

High Standards

In the professional aspects of pharmacy the requirements of the qualification were more demanding than ever before, and conditions of entry were possibly higher than in any other profession. Constructive policies were



IN APPRECIATION : Mr. R. H. Summers (right) hands gifts from local pharmacists to Mr. R. H. Kemp.

needed if the business and professional aspects of the calling were to be successfully combined. Many private pharmacists could, said Mr. Kemp, take "some good leaves out of the books of the multiples." Since 1948 he had been responsible for administering the N.P.U. Business Purchase and Guarantee Fund, which had financed the sales of some 600 businesses and probably saved them for private pharmacy. He pointed out, however, that the regulations of the fund required either the applicant or the vendor to have invested £100 in the scheme for at least six months prior to the transaction. Any who might be considering retirement in the near future might find it advisable to consider investing in the fund in order to take advantage of it.

The changed value of the pound made the value of the qualification, in his opinion, at least £1,000 a year. The attraction to pharmacy for students might therefore become greater than in the past, but many who had undergone a three-year academic course might seek employment outside the retail sector. Hundreds of businesses, many of them founded after the 1914-18 war, did not provide a return of £1,000 per annum to their owners. It was those businesses which Mr. Kemp anticipated would have to close in the next ten years. Some of those owners might consider pooling their resources. Owners of medium-sized businesses (of £20,000 to £25,000 turnover) could possibly carry two pharmacists and might consider

arranging partnerships, preferably by utilising the limited liability company procedure. The younger man could thus gradually take over whilst safeguarding the original owner (and perhaps granting him some pension rights). Details of such schemes could be obtained from Queen Square.

The goodwill of a business could be calculated, said the speaker, by doubling the average annual absolute net profit over a period of three years. Many pharmacists did not realise the value of their leases. Their value could be obtained by ascertaining what would be the present annual rental, deducting from that figure the actual rental paid, and then multiplying the remainder by half the unexpired portion of the lease.

Looking to the future, Mr. Kemp did not think that pharmacists should attempt to change themselves overnight to supermarkets in order to compete with them. Many pharmacists unfortunately operated in a dingy atmosphere, and "the first thing to do is to bring light and cheerfulness to your business." The development of a policy of self-selection would lead to success, "but remember you are a pharmacist and do not copy the cheap departmental store. Always have the pharmacy department to the fore." The majority of pharmacists were overstocked and more money was to be made by good buying than by selling. "Buy judiciously and suitably to your district," was his advice. There would always be scope for a good pharmacy in the locality.

His Successor

Mr. Kemp then introduced his successor at the N.P.U., Mr. James McClenahan, who reviewed aspects of the report of the Committee on the General Practice of Pharmacy. The report was useful in that it provoked all pharmacists to look at the whole background of pharmacy and try and develop something that would be pleasing and acceptable to everybody. In general the N.P.U. Executive approved the ideas behind the Committee's report, but they considered that discussion and consideration must be given to a number of points. He did not think the report took into account that two-thirds of the financial turnover of pharmacies was from the sale of goods of many kinds, and only one-third from the National Health Service. If the report were applied "grimly" there were going to be many difficulties. Some "unreasonable and rather impracticable" aspects of the report could result in members being regarded as being guilty of unprofessional conduct.

On the question of the control and limitation of registered premises Mr. McClenahan said appeal to an independent tribunal was a necessary safeguard. Just because a pharmacy was small it should not suffer death. Correspondence between members of the N.P.U. and the Executive made it evident that enforcing a twenty-four hour service would cause difficulties in branch pharmacies and for branch managers. There

was a difference between the responsibilities a professional man would accept and those that could be written into the National Health Service contract. The approach on the two subjects should be completely differentiated.

The section on window displays in the report was out of line with present practice and would have to be amended. The Executive recognised there was a need for trained assistants but adequate safeguards must be forthcoming and he did not think they should be registered by the Society. He commended the report to members for study, and asked them to make their views known to both the Society and the N.P.U. To those not in retail distribution he would mention that increased status for the hospital and pharmacist was closely linked with the status granted to those in retail practice. Status and income usually "went together." The future success of pharmacy depended on making the best of the qualification. Mr. McClenahan thought that generally the public still thought well of the retail pharmacist. Mr. K. W. Youings (chairman) suggested that "those in London" could not have any idea of the difficulties of carrying out a twenty-four-hour service. It might be academically ideal, but in practice nobody under current arrangements went without an urgent prescription.

Presentations

Before the address Mr. R. H. Summers had presented to Mr. Kemp a pipe and tobacco as a token of the respect of the local pharmacists. It was pointed out that Mr. Kemp was a West Countryman by birth and that his first official engagement had been to address a meeting of the N.P.U. in Bath. Mr. Kemp had served under three secretaries (Messrs. Mallinson, Noble and Wright) and his present visit to Somerset was his last in his official capacity as an executive officer of the N.P.U.



CARVED BY ONE OF THE DONORS: Presented to Mr. Kemp by senior executive staff of the National Pharmaceutical Union (see *C. & D.*, April 6, p. 361) the lignum-vitae mortar illustrated was made and incised by Mr. James McClenahan (Mr. Kemp's successor as assistant secretary).

PHARMACEUTICAL SCIENCES

Wide range of department's work in 1962

MUCH of the work of the Department of Pharmaceutical Sciences of the Pharmaceutical Society during 1962 was concerned with the revision of the British Pharmaceutical Codex, British Veterinary Codex, and British National Formulary. The laboratory continued to collaborate in the work of the joint committee of the Society for Analytical Chemistry and Pharmaceutical Society on methods of assay for crude drugs. Experimental work was carried out on the evaluation of containers for dispensing purposes—work done on behalf of the containers subcommittee of the Standing Pharmaceutical Advisory Committee, Ministry of Health, and in connection with the preparation of British Standard Specifications for containers. In collaboration with the Hospital Pharmacists' Consultative Committee, further work was carried out on the stability of injections. Numerous dispensing problems and other inquiries from members were investigated. Assistance and advice was given to two retail pharmacists in investigating pharmaceutical problems in their own pharmacies. In collaboration with another pharmacist the laboratories engaged on an investigation of techniques of preparing, on a small scale, enteric-coated capsules of cobalt chloride. Work continued on cataloguing, indexing, and maintaining the Society's collection of *materia medica* and the herbarium. The collection of colour transparencies of British poisonous plants was extended, and a collection of colour transparencies of poisonous fungi was started.

An Emulsion That "Cracked"

Among the pharmaceutical problems sent in by members was one concerning difficulty in dispensing a cream containing salicylic acid, 2 per cent., and solution of coal tar, 12.5 per cent., in an oily cream. It was confirmed that solution of coal tar, in that high proportion, cracked the oily cream. A satisfactory preparation was made either by substituting the equivalent amount of prepared coal tar 2.5 per cent. for solution of coal tar; or by substituting aqueous cream (an oil-in-water emulsion) for the oily cream.

Another difficulty in dispensing a prescription for silver nitrate, 1 per cent., in calamine lotion was reported by a member. The lotion had become thick and unpourable and the colour had rapidly changed to bluish grey. The observations were confirmed in the laboratory, and experiments showed that two incompatibilities occurred in the preparation. First, silver nitrate reacted with the sodium citrate contained in calamine lotion to form the insoluble salt: silver citrate; since bentonite suspensions of calamine and zinc oxide tended to be thixotropic in the absence of sodium citrate, thickening of the lotion might occur. Secondly, silver nitrate was reduced to metallic silver on exposure to light, a reaction that was accelerated in the presence of zinc oxide and calamine; adsorption of silver nitrate on the particles of the sus-

pended material increased enormously the surface area exposed to light. The first incompatibility could be avoided by preparing a lotion of calamine without bentonite and sodium citrate. The second incompatibility could not be avoided, though discolouration was retarded slightly by making the preparation in a dark place. It was recommended that the prescriber should be informed of the two incompatibilities, and that it would be preferable to dispense the silver nitrate as a simple solution in water, the solution being dispensed in a glass-stoppered amber bottle made of neutral glass.

Advice was sought on a suitable flavouring for a nauseous mixture containing chloral hydrate, gr. 15; potassium bromide, gr. 15; Nepenthe, min. 15, water to $\frac{1}{2}$ fl. oz. Anise, liquorice, dill, cinnamon, caraway, cherry, peppermint, and cocoa were tried. None successfully masked the unpleasant taste of the mixture. The most satisfactory was a mixture of concentrated anise water (min. 2½ per $\frac{1}{2}$ fl. oz.) and liquid extract of liquorice (min. 10 per $\frac{1}{2}$ fl. oz.), with chloroform water.

An Unstable Aspirin Mixture

Another query referred to a prescription for:—acetylsalicylic acid, gr. 15; phenobarbitone sodium, gr. $\frac{1}{2}$, mixture of magnesium carbonate to $\frac{1}{2}$ fl. oz. In the mixture, acetylsalicylic acid reacted with the sodium bicarbonate present in mixture of magnesium carbonate to form the unstable compound sodium acetylsalicylate, which rapidly hydrolysed to form sodium acetate and sodium salicylate. The mixture could be dispensed by first triturating the acetylsalicylic acid and sodium bicarbonate with peppermint water until effervescence of carbon dioxide ceased. If, as seemed probable, the prescriber did not intend sodium acetylsalicylate to be present, then the mixture could be dispensed omitting the sodium bicarbonate.

A Deposit Identified

In a mixture containing phenobarbitone sodium, gr. $\frac{1}{2}$; sodium bicarbonate, gr. 10; potassium bromide, gr. 10; water to 120 minims, a deposit was identified as sodium bicarbonate, which was present in a proportion slightly in excess of its solubility at 15° to 20°. No phenobarbitone was found in the deposit, the pH of the mixture (7.75) being slightly higher than that at which phenobarbitone would be expected to precipitate.

The displacement value (relative to theobroma oil) of two batches of mercurous chloride was also determined in the laboratories and found to be 1.6.

Research on the following topics begun in 1962 is being continued. Evaluation of ointment containers for dispensing; sterilisation of colchicine injection; formulation and stability of effervescent potassium tablets (with Mr. J. W. Hadgraft, chief pharmacist at the Royal Free Hospital), and the silicone-treatment of pharmaceutical and laboratory glassware.

Students' Association Comes of Age

LIVELINESS AT ANNUAL CONFERENCE

STORMY dispute, first over who should act as hosts for the forthcoming International Pharmaceutical Students' Federation's congress in London and secondly on block-voting procedure, marked the opening session of the twenty-first British Pharmaceutical Students' Association conference, held in Glasgow, April 8-12.

Presenting her report as secretary of the ninth International Pharmaceutical Students' Federation Congress reception committee, Miss M. PIDOUX laid down the challenge that by and large, the reception committee had found little evidence that B.P.S.A. was taking any interest in the Congress. If the Association wished to act as hosts, members must offer concrete help.

MR. P. HUGHES (general secretary) refuted the charge as being unfair. The Executive had circulated information and discussed it at every committee meeting.

Finally it was left to the executive to confer with the reception committee's representative in working out a mutually agreeable solution.

President's Statement

MR. M. HURRLE (president) was able, as a result of eleventh-hour negotiations, to put forward a statement that the Association would (1) agree to act as nominal hosts for the London congress, and (2) would undertake financial responsibility for it provided that the congress organising committee did not budget for a loss. The statement was agreed *nem. con.*

Another bone of contention centred on a motion passed at the 1962 conference:—

THAT the Conference shall consist of a nucleus of delegates, one from each school or department of pharmacy, who shall have the power to cast a number of votes equivalent to the number of individual members of B.P.S.A. in that school or department, together with any other members who wish to attend as unofficial delegates or observers, having the right to address the Conference but not to vote if their vote is automatically included in the block-vote of one of the official delegates.

MR. HUGHES said that the purpose of the resolution had been to remove voting anomalies caused by the inability of some colleges to send delegates, but that the argument had been put forward that it could cause the conference to become one of eighteen people. The Executive had, therefore, sent out a recommendation that pharmacy departments should send one delegate for each fifty members of the Association, together with a party leader mandated for block-voting.

At a later stage MR. BURDEN produced a set of "clarification" recommendations on block-voting.

Block votes, he said, should only be used on previously circulated motions; delegation leaders should be empowered to cast a block-vote equivalent to the number of individual B.P.S.A. members in their college; and individual members who were not delegates, might vote on all except constitutional motions.

On that basis MR. M. EASON said Brighton would be happy to withdraw a resolution to abolish the block-vote system. The recommendations were *carried*.

Executive Reports

Presenting his report as president, MR. HURRLE said he had felt it necessary to try to introduce a more efficient administrative system, particularly in view of the large size of the executive. Negotiations were in progress with the Pharmaceutical Society to allow the Association to use some of the Society's staff and office facilities, and he was hopeful of the outcome. During his term of office he had been appalled at the indifference he had encountered



Miss Mary Burr (president, Pharmaceutical Society) makes the first incision in the Association's twenty-first birthday cake.

among the students, not only for B.P.S.A. but for sporting and social activities. "I see this as a reflection of the 9-5 p.m. cram syllabus . . . which produces a highly trained technologist but nothing else." He hoped that the Association would recommend to the Pharmaceutical Society that, in reviewing its syllabus, it should plan the time-schedule to allow for a more liberal education. The report was adopted.

The GENERAL SECRETARY (Mr. Hughes) in presenting his report announced that no pharmaceutical company had been asked to make a donation towards the Association's Glasgow conference, in view of the fact that they had already been approached to finance the 1963 I.P.S.F. London congress. Miss PIDOUX objected that donations might still have been obtained, especially from companies not subscribing to the I.P.S.F. congress. It might still be worth while to canvass them, particularly as some companies were now in a new financial year. MR. HUGHES maintained that the matter should be left in abeyance until the London congress was over. He recommended to the next executive: that the major pharmaceutical companies should be approached to sponsor a series of lectures arranged by the Association (*carried*) and that a ski-camp should be arranged in Scotland during the Christmas vacation for students unable to attend the I.P.S.F. ski-camp (*carried*).

THE TREASURER (Mr. S. Ackers) announced that, at the end of the financial year (February 28), the Association's account showed a net loss of £66. He attributed the deficit to the payment of two year's membership to the Federation: to the large size of the executive; and to late payment of membership fees by certain colleges.

MR. M. COOKE ("the Square") con-

sidered it to have been a gross blunder, in the circumstances, to have allowed the I.P.S.F. London congress to deter the treasurer from writing to companies for financial assistance. A recommendation made by MR. ACKERS in his report "that the present membership fee be increased to 6s." also provoked much discussion. MR. S. LEIGH (Scottish representative) was "dead against" the proposal, which he considered premature, particularly for the Scottish colleges, where "getting 5s. is almost impossible." To obviate indefinite financial discussion, THE CHAIRMAN ruled that the wording should read: "That the present membership fee be increased" (*carried*).

MR. ACKERS proposed "that B.P.S.A. membership dues to I.P.S.F. be paid annually." On a show of hands the recommendation was defeated by seven votes to eighteen, with eighteen abstentions. MR. COOKE explained that the abstainers felt the figures that had been given were too vague to enable a decision to be made.

Overcharged?

MR. HUGHES then introduced a motion demanding that the next executive should ascertain from the I.P.S.F. why it regularly asks for a subscription of £20, when the constitution clearly called for less than that, and insisting that any future grants should be ratified by the Association's annual conference (*carried unanimously*).

MR. EASON, reporting as membership secretary, said the Association represented about 52 per cent. of all pharmacy students, but unless they all realised that it existed solely for their benefit, and gave it their full support, its intended purpose could not be fulfilled. It was difficult to accept Nottingham's excuse for non-membership that, in a University, the outlook was obviously different from that shown by technical college students. Besides being a slight on the latter, it showed an attitude that was responsible for maintaining current dissensions among pharmacists. MR. Eason strongly recommended that the Conference should approach all colleges to make B.P.S.A. membership automatic upon entry (*carried*).

As joint liaison secretaries with the Federation, MISS J. TURPIN and MR. R. H. EVANS recommended that all international correspondence concerned with the I.P.S.F. ski-camp and annual conference should, in future, be made through the appropriate liaison secretary and not directly with individual members (*carried*); and that the Association should select an assistant secretary who could be trained to take full office the following year, and then hold that office for the usual two-year period (*carried*).

The Scottish representative (MR. LEIGH) reported that, during the year, membership at Edinburgh had risen to nearly 75 per cent., and at Aberdeen was also most encouraging, but Glasgow remained the "odd man out."

(To be concluded)

FORTY YEARS OF INSULIN THERAPY

A Dramatic Change of Outlook for the Diabetic

By Leslie G. Matthews

FORTY years ago this month insulin was first placed on sale in this country. Up to that time the outlook for the diabetic had been bleak indeed: a diagnosed diabetic had a poor expectation of life and virtually no chance of regaining normal health. Even the severe diet prescribed could at best slow down the insidious inroad on metabolism. At most a period of a few years remained, perhaps less for the young. The remarkable change in outlook for the diabetic since the discovery of insulin has been dramatic—many years added to life that can now be lived under normal conditions. As Dr. R. D. Lawrence, himself a diabetic for something like forty years, recently remarked upon the wide social changes, brought about by insulin: "Good health for the diabetic, secure employment, reasonable expectation of life, and the survival of children." (Introduction to "The Story of Insulin," 1962.)

An Almost Overnight Change

That almost overnight change came about by the determination and skill of two men in the University of Toronto: Frederick Grant Banting (1891-1941) and Charles Herbert Best (1899—), both Canadians, the one a surgeon in the 1914-18 war, the other then a final year student of physiology and biochemistry. While building up a practice as an orthopaedic surgeon, Banting gave the time to familiarise himself with the writings of those who had studied diabetes, a disease known in classical times, commented upon by close observers through the centuries, and accurately described by one of the physicians to Charles II, the celebrated Dr. Thomas Willis, F.R.S. (1621-75). Later clinicians and physiologists, notably Claude Bernard (1813-78) and Oscar Minkowski (1858-1931), helped to clear the way to a better understanding of the body metabolism.

In the early part of the present century animal experiment was pointing to knowledge that diabetes was directly concerned with the functioning of the pancreas. It was that knowledge, and experiments upon depancreatinised dogs, in addition to the influence known to be exerted by a pancreatic extract upon the sugar content of the urine of dogs, that finally led Banting to consider that, if an active preparation of the pancreatic extract could be made, it could have an important action in reducing blood sugar in the diabetic, in whom it was undoubtedly caused by malfunctioning of the pancreas. To prepare the active preparation was not easy. "No one, prior to 1921, had convinced the scientific world that an internal secretion of the pancreas existed. No one had consistently prepared a potent antidiabetic extract of the pancreatic gland." (Wrenshall, Hetenyi & Feasby in "The Story of Insulin," London, 1962, p. 53.) Those were the almost immeasurable contribution of Banting and Best to the world.

Banting needed somewhere to work. Impelled by his enthusiasm Dr. J. J. R. McLeod, then professor of physiology, offered him laboratory accommodation and suggested that, as biochemical problems would be encountered, a biochemist would be a great help. The student who volunteered for the work was the young Charles H. Best. In the Spring of 1921 the two started their experiments upon dogs, ligating the pancreas duet, in the hope that the islets of Langerhans in the pancreas might thereby be induced to produce an active substance which, if it could be extracted, might be

given to dogs from which the pancreas had been removed and which were thus rendered diabetic. By that means the efficacy of the active extract to control the induced diabetes could be tested.



Left: Dr. Sir Frederick G. Banting, F.R.S., (1891-1941) working in his laboratory. Right: Professor Charles H. Best, C.B.E., F.R.S. (1899—).

By the end of July 1921 there were signs that the injection of the active material they had prepared was effective in dogs, and that control of blood sugar, and thus of sugar in the urine, was possible. Further work alternately raised and then lowered hopes of success, but the experimenters were satisfied that they were achieving results that justified them in continuing. To the active extract they gave the name "isletin," later changed to "insulin." Six months later, in January 1922, they were able to administer the first insulin to a diabetic patient in the Toronto General Hospital: a boy of eleven named Leonard Thompson, already in a poor state from diabetes. The effect was dramatic: the diabetes was rapidly controlled and he soon showed improvement. Other patients had the same happy results. Already in November 1921 Banting and Best had described their results of experiments upon dogs to a meeting of the University of Toronto and, once the news of its successful use upon human patients became known, the problem of producing enough insulin to treat even the severe cases of diabetes in Canada alone meant that large-scale extraction of insulin must now be undertaken. That proved a greater problem than had been foreseen. It was known that enzymes, and particularly trypsin, destroyed the activity of the insulin content of the pancreas, and that the glands would have to be used at low temperatures to avoid loss of activity. Demands from health authorities throughout the world for knowledge of the method of insulin preparation could not be stayed. Fortunately the insulin committee set up by the Governors of the University of Toronto took charge. Patents were filed in many countries to ensure control over the methods employed for the preparation of an active substance, and to avoid the issue of an ineffective medicament under the name insulin, a name that was widely registered as a trade mark. The rights in the United King-

dom patent were offered freely to the Medical Research Council, who allowed manufacturers in Britain to use the patent without fee. In some countries fees were paid and the proceeds used by the University of Toronto for further research on insulin.

In devising a satisfactory large-scale process in Canada the discoverers had the assistance of Professor J. B. Collip, whose name appeared in the patent specification filed in this country on June 13, 1933. The complete specification (No. 203,778) was accepted on September 13, 1923. It states that the invention relates to a method of preparing, for use in the treatment of diabetes, a pancreas extract that contains the antidiabetic principle or hormone, and that a potent preparation is obtained by the method disclosed in detail. Basically the pancreas (from ox) was treated with a solvent to inhibit the action of enzymes, inert gland tissue removed, the filtrate concentrated and, by subsequent processing, an aqueous solution in which the active substance was contained was precipitated. Later work has greatly improved the process then described, and since those days the yield of insulin per kilo of gland has been vastly increased.

Clinical Appraisal

In August 1922 clinicians were in a position to assess the importance of the discovery of insulin. Banting and Best, with J. B. Collip, W. R. Campbell and A. A. Fletcher, had published their painstaking work and its remarkable results in the *Journal of the Canadian Medical Association* in March 1922 and in the *Journal of Laboratory and Clinical Medicine* of St. Louis (1922, vii, 1). In November 1922 the [U.K.] Medical Research Council, its representatives having then recently visited "by courtesy of the University (of Toronto) the various centres of work in Canada and the United States," were able to make a public statement of the policy they considered in the best interest of the public and of medicine relative to manufacture and experimental clinical work in this country. The special care needed in manufacture to ensure an active preparation called for control over methods and its clinical use required a "well equipped physiological and biochemical laboratory." The Council had made arrangements for work to be undertaken in Britain and at that date (November 1922) were planning how best to facilitate manufacture upon a scale that would keep pace with the demand. THE CHEMIST AND DRUGGIST, in a leader in the same month (1922, 97, 738-39) mentioned that conditions were being drawn up under which licences would be granted to individual manufacturers. "What promises to be an advance in the treatment of diabetes . . . involves the use of a hormone . . . this principle being prepared from the pancreas of the ox, pig or sheep. . . . There is sure to be a large demand for the remedy, and we hope that it will be available quickly."

Things moved rapidly, despite the difficulties associated with the production of this entirely new type of medicament. Six companies sought licences from the Medical Research Council, of which the four, Allen & Hanburys, Ltd., The British Drug Houses, Ltd., Boots Pure Drug Co., Ltd., and Burroughs Wellcome & Co., having the necessary laboratory and experimental facilities, started to manufacture insulin. It was not easy. New equipment had to be installed, and by some manufacturers new buildings were needed. Better methods of collecting the raw material (ox pancreas) had to be devised. It had to be quickly frozen after being cut from the animal to prevent the loss of activity from the gland. Raw material had to be regularly forthcoming to ensure continuous production.

For Selected Patients

By the end of 1922 one British company had produced insulin of a quality to satisfy the severe standards rightly imposed by the Medical Research Council, and by February 1923 THE CHEMIST AND DRUGGIST (1923, 98, 271) could report that insulin was being used for the relief of selected patients in five of the major hospitals in London, and in

Edinburgh and Sheffield, and that supplies would shortly be available for routine use, adding "since the advent of Salvarsan no product has aroused such general interest as insulin."

The substance had to be given by injection, oral administration having been found inactive. At that time standardisation was in terms of units, measured by rabbit convulsion: even that standard, as Dr. Banting admitted, was not strictly accurate. Later more satisfactory standards were devised and an International Standard has long been accepted. The Minister of Health was asked in the House of Commons whether he would make a grant-in-aid to facilitate more rapid and abundant production, but he was able to reply that the successful manufacture of insulin in the near future was assured. During April 1923 Allen & Hanburys, Ltd., with The British Drug Houses, Ltd. (acting as the A/B partnership) and Burroughs Wellcome & Co., were able to offer insulin in rubber-capped phials at 25s. per 100 units, a lower price than had been found possible in the United States. Boots Pure Drug Co., Ltd., the fourth company to undertake production in the United Kingdom, issued their insulin later.

The purification method adopted by all British manufacturers at that period was that devised by Dr. Dudley at the National Institute for Medical Research, a method by which the insulin hydrochloride was free from accidental irritants and other substances. Samples of each batch, with the manufacturer's own protocols of tests, were submitted to the Medical Research Council, and were released only when the Council's approval had been given. For a short time issue was restricted to hospitals and to practitioners with facilities for making the accurate blood determinations essential for establishing dosages appropriate to the patient's individual condition. Because of shortage of material only severe cases of diabetes mellitus were treated at first, the average dose then being thought of in terms of 10 units given by injection twice daily. The preparation was known to have no effect in diabetes innocens. Each batch of insulin bore its date of issue and an expiry period. Two months after the first announcement of the availability of insulin, that is in June 1923, manufacturers were able to say that insulin could be supplied as an ordinary transaction, and from that time onwards, although there have been occasional shortages, the British manufacturers have so arranged matters, by supplying one another with solid insulin if the need arose, that no diabetic in the British Isles has been in serious danger of lacking insulin, even in the difficult days of the 1939-45 war.

World Honours

Naturally such a discovery as insulin brought recognition in high places to those responsible for it. Banting shared the Nobel prize for medicine with Professor J. J. R. McLeod in 1923. He was knighted in 1934 and elected a Fellow of the Royal Society in 1935. Professor Charles H. Best, C.B.E., was elected F.R.S. in 1938. For many years he has been director of the Banting and Best Department of Medical Research, Toronto, and since 1954, has been head of a new institute bearing his name. Two research foundations in Toronto are named after the discoverers of insulin. In one respect only perhaps has insulin fallen short of an early hope: by some it was eagerly looked upon as providing a cure for diabetes; rather it was proved a highly satisfactory regulator and reliever of diabetes, enabling the sufferer to lead a normal life. Such is the importance of insulin to millions of diabetics that it ranks with the major medical discoveries of all time.

MYSTIC POTIONS?: "Perhaps nowhere in contemporary society can we see such clear evidence of the persistence of magical thinking as in the doctor's willingness to be persuaded—well, half-persuaded—that the drug houses have newly discovered the elixir of life."—G. M. CARSTAIRS (professor of psychological medicine, Edinburgh University) in one of the 1962 Reith lectures.

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B. W. & Co. developed and were the first company to use crystalline insulin in manufacture. Into every batch of 'Wellcome' Insulin goes an experience stretching back to the earliest days of insulin treatment.

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(The Wellcome Foundation Ltd.)

The intelligent pharmacist takes an interest in the problems of his clients, for he can help both them and himself in this way. Those pharmacists who number diabetics amongst their customers will be interested to learn of the British Diabetic Association's quarterly journal "Balance," which not only carries articles on diabetes, recipes, etc., but also contains advertisements by leading manufacturers of diabetic foods and drinks.

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FORTY YEARS OF INSULIN THERAPY

Development of Insulin Preparations

IN September 1922 Dr. H. H. (now Sir Henry) Dale and the late W. H. Dudley were sent by the Medical Research Council to Canada to find out all they could about the new discovery, insulin, by Banting and Best. When they arrived there they learned that manufacture was already under way in the Connaught Laboratories of the University of Toronto, and in the works of Eli Lilly in Indianapolis.

The manufacturing centre at Toronto was a sub-basement, the apparatus improvised and primitive. It is recorded that a wind-tunnel with unprotected wires was used for evaporating acetone extracts, and that two tons of ice had to be man-handled each day into the cellar to cool the metal still. In such an atmosphere prodigious efforts were being made to meet the already enormous demand for the life-saving hormone. The method of manufacture had been devised by Collip in collaboration with Banting and Best. It consisted of fractional extraction to inactivate destructive enzymes. The yield varied, but 5 units of insulin from one kilo of pancreas was considered a good result.

So soon as he returned to this country, Dudley began to study and reassess the extraction process. He found that protection from trypsin was of less importance than a reaction sufficiently far, on either side, from the isoelectric point. He also evolved a method of purifying the crude insulin solution by picrate precipitation and then redissolving in hydrochloric acid. He was able to obtain the hormone in a dry, stable condition.

Production in Hospital and Research Laboratories

In the meantime, at the instigation of Sir Henry Dale, eight hospital laboratories and the Wellcome Research Laboratories began small-scale production. By December 1922 the Medical Research Council was able to arrange a meeting with the ten manufacturers considered capable of producing insulin commercially. Five received permission to proceed, but in the event only the present British Insulin Manufacturers—the AB partnership of Allen & Hanburys, Ltd., and The British Drug Houses, Ltd., Boots Pure Drug Co., Ltd., and Burroughs Wellcome & Co.—went into production. Evans, Sons, Lescher & Webb, Ltd., did, however, enter the market for a short time in 1927-28.

Guided by Dudley's work, the manufacturers were able to extract 500 units of insulin from a kilo of pancreas, thereby eliminating the lead gained by the Canadian and American producers. In April 1923, AB and Wellcome insulins, 20 units per c.c., came on to the market at a cost of 25s. per vial of 5 c.c. Boots' insulin followed in the autumn, and just over a year later—by which time all home demands were being met and some export trade had been developed—the price came down to 2s. 8d.

An early source of trouble was standardisation. The late Dr. J. W. Trevan, of the Wellcome Research Laboratories, had passed a batch of insulin which was then rejected by the National Institute for Medical Research. "This," said Trevan later, "touched my pride, as well as getting me into trouble with B.W. & Co. In fact, neither the Institute nor Beckenham was right; neither of us had done an adequate assay." So, with E. M. Boock, he evolved a method of assay based on convulsions in mice. That work, incidentally, led him to review the whole subject of biological assay and to

produce his classic, "The error of determination of toxicity," in which he introduced the concept of the median lethal dose, or LD₅₀. His election to the Royal Society some years later may therefore be said to have arisen from a faulty pharmaceutical assay.

In 1925 Dudley provided the first international standard insulin, containing 8 units of activity per mgm. (it was replaced in 1936 by Canadian material containing 22 units per mgm.).

Crystalline insulin was first isolated in 1926 by Professor Abel of Johns Hopkins University and by Professor Frank of Warsaw. Abel's method was to remove unwanted matter by precipitation with brucine, followed by crystallisation from the clear centrifugate by pyridine. A joint paper from University College Hospital, London, the AB laboratories, the Wellcome Research Laboratories, and the National Institute for Medical Research in 1929 showed that the method was not always reproducible, despite close collaboration between the experts. It took a further four years before one of the collaborators (D. A. Scott) solved the problem. Scott, who had transferred to Toronto, explained in 1934 that zinc ions were needed for the precipitation of insulin crystals at the isoelectric point. It is of interest that Scott arrived at his conclusions because, when fresh phosphate buffer was used, crystallisation did not occur, whereas success followed the use of stored buffer solution. Scott, being unable to offer an explanation, looked at the pancreas itself to see what metallic ions it contained. He then tried, in turn, zinc, cobalt, nickel and cadmium salts as precipitating agents. The logic of looking to the gland when the problem seemed to lie in the buffer may not be obvious, but he in fact showed that each of the metals could induce precipitation, and that zinc was an integral part of insulin crystallisation.

Almost immediately, Burroughs Wellcome & Co. revised their method of manufacture and before the end of 1934, were issuing preparations formulated on crystalline insulin. The AB partnership followed in 1937, and Boots Pure Drug Co., Ltd., in 1940.

Modifications

From early days attempts had been made to prolong the action of insulin. Some success was obtained by Leyton in 1929, when he dissolved dry insulin in castor oil, but unfortunately the vehicle was slow to disperse, and the risk of infection was increased. Seven years later Professor Hagedorn, Copenhagen, announced the preparation of a complex of insulin and protamine from a species of trout, *Salmo irideus*. The material had its lowest solubility at around the pH of blood, thereby delaying absorption of insulin. The product went on the market for a short time, but was almost immediately displaced by the improved product, protamine zinc insulin (P.Z.I.). That now familiar preparation, which had been evolved by Scott and Fisher of Toronto, was in effect Hagedorn's delay insulin with added zinc. By 1937 the four British insulin manufacturers issued the new product simultaneously. Boots, Ltd., were particularly active in obtaining full information from Toronto and passing it on to the other manufacturers.

The next step was made by the Wellcome Foundation's American subsidiary Burroughs Wellcome & Co., New York, whose research workers Reiner, Searle and Lang evolved

globin zinc insulin. That product is a clear solution containing a derivative of haemoglobin. It has an action intermediate between that of P.Z.I. and unmodified insulin. Unlike P.Z.I., globin zinc insulin does not call for the concurrent administration of unmodified insulin to control breakfast carbohydrate.

During the next decade the two delayed action insulins held the field. In 1951 they were joined by Isophane insulin, a refined and modified P.Z.I.

The next major "break-through," and in many ways the most important to date, was the discovery of insulin zinc suspensions (I.Z.S.)—commonly known as the "lente" insulins—by Hallas-Moller and his colleagues in Denmark in 1952. Over a quarter of a century after Dudley had shown how to make use of the isoelectric point to increase the yield of insulin, the Danish workers showed how that same isoelectric point could be used to provide long-acting preparations free from protamine, globin, or other protein. Thus the wheel of research turned full circle. The secret of the new insulins, and the reason why it had remained hidden so long, lay in the buffer used. Phosphate or citrate ions, which were present in the buffer solutions used in older insulins,

interfere with the adhesion of zinc to the hormone. Hallas-Moller suspended his zinc insulin in acetate buffer. Basically, lente insulins are of two types, one containing the amorphous form of zinc insulin, the other crystalline insulin. The familiar lente insulin itself is a mixture of the two types, thus producing an insulin with fairly rapid onset as well as prolonged action. Today, the majority of newly diagnosed diabetics are stabilised on that insulin from the start, though long standing cases, and those needing high dosage, are usually maintained on one of the older types.

Insulin was the first protein to have its chemical structure discovered. That was effected in a brilliant piece of work by Dr. Frederick Sanger of the M.R.C. staff, Cambridge. Recognition of that considerable contribution to protein chemistry came to Dr. Sanger by his election to Fellowship of the Royal Society in 1954, and by the award to him of the Nobel prize for chemistry in 1958. The complicated structure of the insulin, and the cost of synthesis, has so far prevented economical manufacture by chemical methods. There have been many attempts to find alternative sources of raw material to ox, pig or sheep pancreas, but none has given a high enough yield of insulin to warrant its use.

FORTY YEARS OF INSULIN THERAPY

Insulin: A Unique Example of Technical Collaboration

By Frank Hartley, B.Sc., Ph.D., F.P.S., F.R.I.C.

IN its duration and in its nature, insulin has provided a unique example of technical collaboration in the pharmaceutical industry. The Monopolies and Restrictive Practices Commission, in its report on the supply of insulin, in October 1952, said :

We are impressed by the extent and thoroughness of the technical collaboration between the members of the B.I.M. (British Insulin Manufacturers) and by the increase in insulin yields which has resulted from it. We draw particular attention to the value of this increase during the war years. We have already indicated the extent to which increases in yield have offset increases in pancreas prices. We note, too, the improvements the B.I.M. have introduced in the way of packing and presenting insulin and in formulation, and the extensive programme of general research which they are now carrying out.

A number of common problems created by the war (threat to pancreas supplies, possibility of loss of insulin stocks or damage to plant from enemy action, a considerable and understandable degree of apprehension on the part of the medical profession, the pharmaceutical trade and the diabetic public, resulting in some "panic" buying of insulin and an artificial scarcity) provided the general background to the decision of Burroughs Wellcome & Co., Boots Pure Drug Co., Ltd., The British Drug Houses, Ltd., and Allen & Hanburys, Ltd., in 1941 to collaborate as the British Insulin Manufacturers (B.I.M.) in the supply of insulin. Joint research was begun in the autumn of 1941 with a view to increasing the yield from the limited supply of glands available. The results of previous research activities were pooled, and extraction processes were compared. Collaborative experiments were initiated and factory visits began to be exchanged early in 1942. The most important single result of the B.I.M. collaboration during the war years was a remarkable increase in the insulin yield per lb. of pancreas, associated with the development and use of a B.I.M. know-how. But through that early collaborative research, the purity of insulin was increased and improvements were made in formulation resulting in increased stability and diminution of the degree of pain caused on injection.

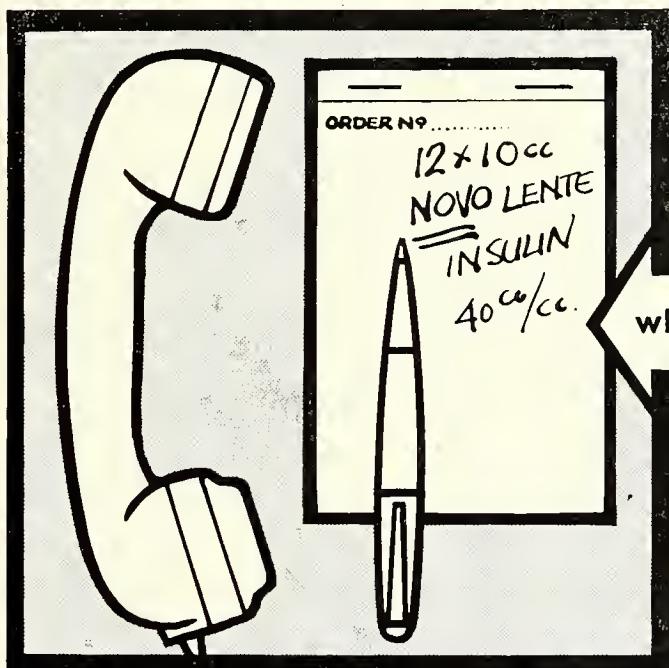
Technical collaboration was formalised in greater detail in a memorandum in 1949 whereby the companies agreed "to the fullest possible extent and with the fullest exchange of technical information" to collaborate in a field covering among other things "all aspects of research, development and production, assay (both chemical and biological) at all stages in the manufacture of insulin," and all aspects of substances having insulin-like action, and new uses.

Advantages of Collaboration

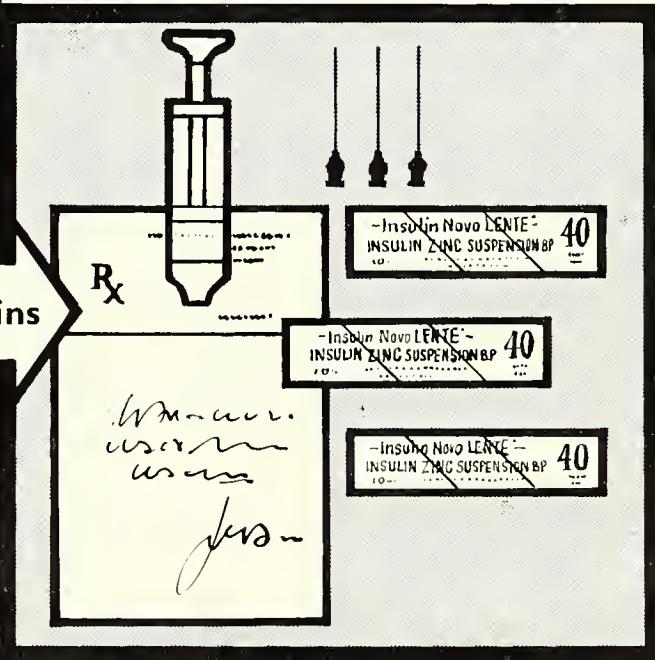
That extended collaboration not only led to further improvements in the economic and efficient extraction of pancreas but also in the methods of evaluation and in the more rapid development in Britain of the manufacture of improved forms of insulin. In collaboration with the National Institute for Medical Research, improvements were effected in the evaluation of injectable forms of insulin and its complexes, and they were reflected in revised regulations made under the Therapeutic Substances Acts. Assistance was also given in the preparation and checking of the third and fourth International Standard preparations of insulin. In 1953, methods were developed for the manufacture in Britain of the insulin-zinc suspensions (I.Z.S.), or "lente" insulins, by the member companies of B.I.M., under licence from Novo Terapeutisk Laboratorium. The specifications developed for the I.Z.S. preparations under the T.S.A. were included in the 1955 Addendum to the B.P., 1953. In a similar manner B.I.M. developed the manufacture in Britain of Isophane insulin (N.P.H.) under licence from Dr. Hagedorn. At the same time, as revealed in patent applications, B.I.M. had developed a polylysine-insulin complex shown in published clinical studies to be a possible improvement on the complex with naturally occurring protamines. To avoid the possible confusion that yet further forms of injectable insulin would have caused, it was decided not to market the polylysine complex.

Some modification of the scope of the technical collaboration, to exclude synthetic hypoglycaemic agents other

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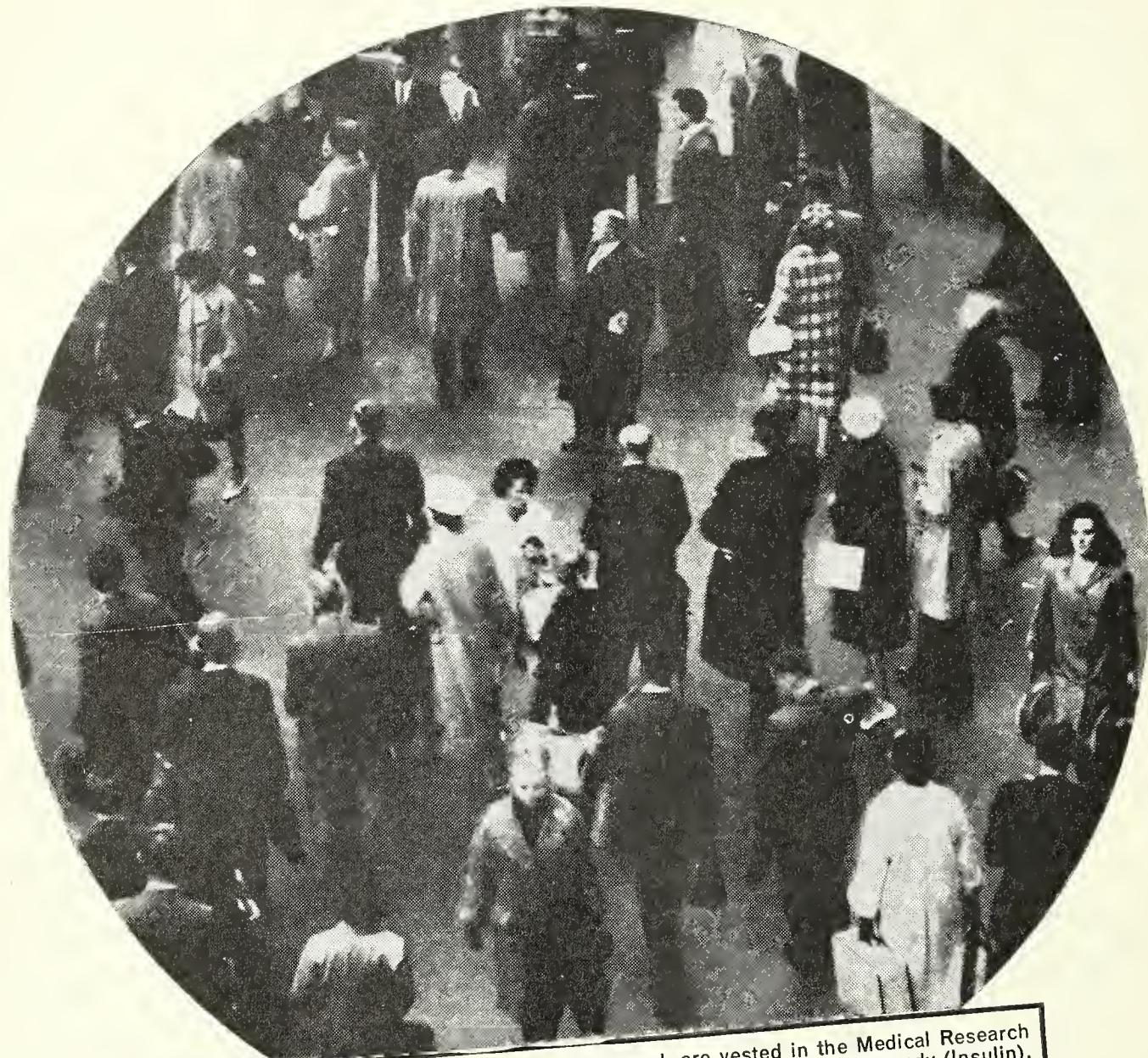
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"All patent rights, so far as this country is concerned, are vested in the Medical Research Council, who have issued licences to certain manufacturers to prepare the remedy (Insulin). For various reasons the manufacturers have decided to combine and pool their resources, and one such combination, The British Drug Houses Limited and Messrs. Allen and Hanburys Limited, are now in the proud position of being the first British makers of this much-desired remedy." *Pharmaceutical Journal*, 14 April, 1923.

**SINCE 1923 COUNTLESS THOUSANDS
OF DIABETICS IN ALL PARTS OF THE WORLD HAVE BEEN
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than those derived from insulin, followed the discovery and introduction of the orally active hypoglycaemic sulphonamides. The potentially far-reaching implications of that discovery had been revealed at a symposium on the mechanism of action of insulin and other hypoglycaemic substances organised in 1958 by the B.I.M., in which prominent workers from many countries participated. Little short of a pooling of the member companies' total research efforts could have overcome the many problems that then seemed likely to arise. The experiences in the Therapeutic Research Corporation had demonstrated the profound problems presented by simultaneous collaborative research in many fields without the financial amalgamation of the participants.

But the decision to restrict the technical collaboration to insulin still left considerable scope for valuable work. As has been indicated in published work, studies were subsequently supported in clinical centres on natural antagonists to insulin, on preclinical diabetes, and on methods of

assay of plasma for insulin, all directed to increased understanding of diabetes and of the mode of action of insulin. The publications of Fenton on chromatographic studies have revealed the progress subsequently made towards the development of methods of assay as eventual potential alternatives to the necessarily expensive biological assays in mice, guinea-pigs and rabbits.

Studies have undoubtedly been made also to determine the feasibility of orally active forms of insulin and of the feasibility of synthesis from amino-acids, following the revelation of the chemical structure of insulin, by Sanger from his work at Cambridge (see also p. 492).

Twenty-one years after the first collaborative experiments were made by B.I.M. in 1942, it may fairly be said that insulin has afforded a striking and unique example in the pharmaceutical industry of the value of technical collaboration. May it long continue and perhaps encourage other examples and further developments.

FORTY YEARS OF INSULIN THERAPY

Raw Materials in Insulin Manufacture

By L. J. Donnithorne, M.P.S. (Chief buyer for the British Insulin Manufacturers; manager of buying division, The Wellcome Foundation, Ltd.)

THE first pancreas glands to be used for the manufacture of insulin in the British Isles were collected from a slaughter-house by a motor-cyclist with a side-car attached to his machine, equipped with buckets containing broken ice. The glands were speedily transported in the ice to the processing laboratory, where equipment and extraction facilities had been assembled to produce the newly discovered material, which could save the lives of persons suffering from diabetes mellitus. The collection facilities were quickly extended to many of the larger slaughter-houses in the United Kingdom and later, as the demand for insulin grew, arrangements were made to import additional supplies of glands from Argentina, Uruguay, Brazil, Australia, New Zealand and U.S.A. More limited purchases were also made from South Africa, Canada and Mexico.

Planning Problems

The planning of the organisation for the collection operations was by no means simple. Pancreas glands of cattle, pigs and sheep, in addition to containing insulin, produce and store the precursors of enzymes such as trypsin, chymotrypsin and amylase. Some of those activated enzymes at normal temperatures quickly destroy the insulin stored in the gland.

Based on the work of Banting and Best, practical arrangements had to be made to extract the glands from the cattle so soon as possible after they had been slaughtered; for the careful removal of the fat and connective tissue without damaging the gland itself; and for the individual freezing of the glands on flexible metal trays at temperatures of 16° F. or below. After the glands had been collected and frozen they had to be retained in that condition until they were placed in the mincer prior to entering the insulin extraction vessel. At no stage in the journey was any rise in temperature permitted, since such a rise for a few minutes only would result in the rapid destruction of the imprisoned insulin.

Before the 1939-45 war there were a large number of slaughter-houses in Great Britain, in many of which only a small number of animals were killed weekly. It was inevitable in the circumstances that only the major slaughter-

ing-centres could undertake the collection of glands on an economic basis. The smaller establishments could not justify the installation of the necessary freezing facilities or bear the relatively high cost of complicated transport of a small quantity of material.

From the slaughter-houses, weekly collections of glands were made. Refrigerated vans brought the frozen material to assembly centres, from which it was dispatched in special rail containers or vans to a main cold store. Additional protection against rises in temperatures on lengthy journeys was provided by placing solid carbon dioxide in the containers.

Overseas the position was different. In Argentina, Uruguay and Brazil were a number of large packing houses catering for the export market in frozen and chilled meat, where organised collections could be planned for large tonnages of glands. The planning of purchases of glands from South America and elsewhere entailed instructing the abattoir personnel in the techniques of extraction from the animal, trimming, freezing, packing and transport. Steps had to be taken to ensure that loaders, lorry drivers, ships' engineers, dockers and warehousemen all realised what a vital and temperature-sensitive cargo they were conveying.

In such establishments the glands were quickly transported from the killing floor to a trimming bench. The trimmed glands were placed on metal trays and placed in a refrigerated chamber. Twenty-four hours after entering the chamber the glands were removed from the freezer trays and packed into wooden or robust fibreboard cases of approximately 80 lb. net weight, the whole operation taking place within the cold room. Normally the glands were stored in the same dockside cold room until they were transferred by way of a covered gantry to the ship's refrigerated store.

A Grave Situation

As might be imagined, the 1939-45 war did not simplify the problems. The United Kingdom was faced immediately with disruptions to the importation of the glands and, since British manufacturers were at that time obtaining more than half of their raw material from overseas sources, the situation was grave. Many vessels carrying glands were



At left: Trimmed gland (quarter life size in the picture) extracted from a 3½-year-old Ayrshire steer. The gland itself was slightly above average size and weighed 12½ oz. The portal vein has been removed from the central cavity. At right: Yield of crystalline insulin from 500 kilos (½-ton) of ox pancreas (about 2,500 cattle).



either torpedoed or lost by enemy air action, and it was apparent that emergency measures were essential if the manufacturers were to meet in full the needs of the diabetic community in Britain, and in those markets overseas that were dependent upon British supplies.

In collaboration with the Ministry of Food and the gland collectors, immediate arrangements were made to extend the collection of British glands by installing deep-freeze cabinets in every slaughter-house in the country. That operation, though complicated and difficult, was helped by the decision of the Ministry to concentrate slaughtering at between 600 and 700 centres throughout the country.

The manufacturers met the war emergency by agreeing to pool all supplies of gland, and to share them between the existing production laboratories as a partial insurance against the loss of any one unit due to enemy action; a decision that proved a wise one, since one of the three production plants was put out of action during the bombing of London. The collaborative purchasing and allocation scheme between manufacturers worked smoothly, and was so successful in practice that it has been continued to this day. Fortunately, however, the quantities of gland now available are adequate, and there is no longer any need to apportion supplies.

Over the years the British manufacturers have aimed to produce insulin at the lowest possible cost. They have

been morally conscious of the fact that cheap insulin was essential if the maximum number of diabetic patients throughout the world were to be saved. That aim continues as their objective. It would be equally appropriate to pay tribute to the majority of owners and managers of abattoirs in the various parts of the world at which glands are saved, for their acceptance of the moral need for cheap insulin and for the contributions they have made to that end.

British insulin is competitively priced in world markets, and is one of the cheapest of the world's sources of supply, with the possible exception of one or two European producers that are understood to benefit from a government subsidy on the price of glands.

Periodically there have appeared suggestions that a world shortage of pancreas glands could occur, and that there might not be sufficient insulin for the needs of the diabetic population. That is not true. World production is adequate and could be increased.

Owing partly to improved diagnostic procedures, and to the fact that persons with diabetes are now living longer, there has been a gradual increase in the number of persons requiring treatment. The cattle population of the world is also increasing, however, and, with improved methods of manufacture giving increasing insulin yields, there is no likelihood of any shortage. If necessary, supplies of lower-yielding insulin glands could be utilised.

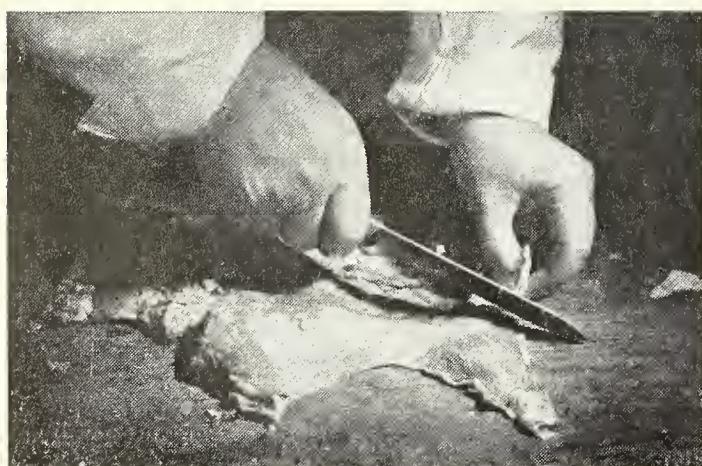
Under the heading of raw materials for insulin must be included an annual usage in the United Kingdom of the following:—

Ethyl alcohol, 120,000 gall. Acids, 300,000 lb. Filter aids, 600,000 lb. Salt, 600,000 lb. Ammonia, 72,000 lb.

The British Insulin Manufacturers were the subject of a Monopolies Commission investigation some years ago. It was gratifying to find in the Commission's report that it considered "The arrangements for pancreas purchase are in our view efficient and satisfactory."

Since the days of the motor-cycle, side-car and ice buckets, the industry has made much progress, and methods of collection are well established and controlled. Even so, an immense amount of work has been undertaken to make sure that the techniques are scientifically efficient.

Over the years experimental collections have been made of many kinds of animal and fish pancreas. Horse glands provide a low yield of insulin and only a limited potential tonnage is available. Water buffalo also give a low yield, with immense difficulties of collection and transportation.



Pancreas gland being trimmed of connective tissue and surplus fat.



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The importance of safety in the control of diabetes

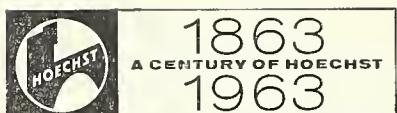
Nowhere is safety more important than in drugs intended for long-term—even life-long—use. One reason for the extensive use of Rastinon in oral anti-diabetic therapy is that no serious side-effects are associated with the product even after its use in some two million patients.

The few side-effects reported have been transient and have rarely necessitated cessation of treatment.



Rastinon is the standard oral treatment of diabetes and is especially indicated for patients in whom the condition is first diagnosed at middle age.

Rastinon tablets are remarkable for their safety, simplicity, effectiveness and economy.



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Whales have huge glands, but it would be almost impossible to collect them quickly or arrange for rapid freezing. Even shark glands have been examined, despite the knowledge that inadequate tonnages would be available and that collection would present insuperable difficulties. Such experimental work is considered essential if only to extend the knowledge and ensure that no source is overlooked.

Since approximately one person in 200 in the U.K. is a

diabetic, and a large proportion of them require, or may require, insulin at some stage, it is appropriate to emphasise that every precaution is taken by the manufacturers to ensure that adequate stocks of insulin and raw materials are maintained at all times, to ensure that shipping delays, frozen ports, strikes, labour disputes or any other hindrance does not impede the regular manufacture of one of the world's most vital life-saving hormones.

FORTY YEARS OF INSULIN THERAPY

Clinical Aspects of the Diabetic Problem

By a Medical Practitioner

TO the practising doctor the diabetic patient does not today present a real problem, but his disease still has many facets that test the clinician's judgment and clinical acumen.

The most important, and sometimes the simplest, aspect is that of making the diagnosis. The discovery of reducing substances in the urine is abnormal, no matter what the age of the patient. The detection of glucose in the urine, whether by Tes-Tape or Clinitest tablet, have made a simple test even simpler, and have greatly helped the clinician and the patient to control the disease. Those simpler methods of detection of glycosuria have made large-scale "diabetic surveys" practicable, revealing a larger number of previously undiagnosed, and symptomless, cases of diabetes mellitus than had previously been supposed.

The finding of glycosuria is not necessarily diagnostic of diabetes, for the patient may have only a low renal threshold for sugar. Confirmatory estimations of the blood sugar, and glucose-tolerance curves, have therefore, to be made to establish the diagnosis.

In the present state of knowledge diabetes cannot be "cured" in the strict sense of the word, but the deficiency of insulin can be made up to provide good control.

Diabetics may be classified into two clinical groups—moderately severe and severe; and the mild, obese type.

The severe and moderately severe group includes the children, teenagers and adult diabetics up to about the age of forty-five years. It will include a few elderly patients, aged seventy years or over, in whom the onset of the disease has occurred at that age. Patients in that group usually commence their illness with the classical textbook description of the symptoms of the disease, namely thirst, tiredness, polyuria, polydypsia, and profound loss of weight, leading to ketosis, dehydration, coma and death unless urgently treated.

The mild, obese group of patients are usually middle-aged over-weight women who seldom present classic symptoms, except *pruritis vulvae*. They more often complain of tiredness, or seek medical advice for one of the complications of the diabetic state, such as cataract, retinitis, or vascular changes in the feet or toes.

Diabetics of any age may be discovered at a routine medical examination (pre-school, employment or life-assurance) especially if the disease is in an early stage, and glycosuria only is present. Furthermore, diabetes is a hereditary disease, and it would be wise for an offspring of diabetic parents to keep a regular check on his urine, especially as he gets older.

The complications of the diabetic state cannot altogether be completely prevented even when the most perfect control is apparently being exercised. However, the better the blood sugar control the fewer complications.

Diabetes may affect almost any part of the body from the eyes to the toes. Some of the commoner complications are cataract, retinopathy, neuropathy and vascular disease. The most serious complication is the development of ketosis and coma, which, when not caused by failing to take the correct dosage of insulin, or keeping to the prescribed diet, is often due to the presence of infection, whether as a mild skin sepsis, gastroenteritis or pneumonia. The development of diabetic coma is never sudden, as it is the end stage of a progressive ketosis, and therefore should be preventable. It requires urgent medical attention, and the pharmacist can help his diabetic customer by advising that even with the mildest infection he should seek medical aid.

Hypoglycæmia

Occasionally diabetics taking insulin go into hypoglycæmia or insulin coma. The cause is usually the missing of a meal, or unaccustomed exercise, or sometimes taking too much insulin. The onset is sudden. The patient has a full bounding pulse, and sweats profusely. Treatment is by administering sugar by whatever means is most appropriate, depending on the degree of hypoglycæmic shock. If there is any doubt whether hypoglycæmia is present, no harm will come of giving some sugar whilst medical aid is sought.

Diabetics in the severe and moderately severe group require treatment by insulin and diet to prevent ketosis. Several types of insulin preparations are now available, giving the clinician a wide choice in order to obtain the best control.

The mild obese diabetics may often be well controlled by diet alone but the diet must be strictly adhered to. The oral hypoglycæmic agents tolbutamide, chlorpropamide and phenformin may be used two to three times daily. They also have to be used in combination with diet, and in this group of patients a reducing diet is an important part in the control of the blood sugar.

The pharmacist can help the clinician and the patient in many aspects of the diabetic state. It is important that the patient receives the correct type, as well as strength, of insulin, and that he is made aware of the different markings on 1-mil and 2-mil syringes. The pharmacist can advise on the care and sterilisation of syringes and needles, and on the diabetic preparations now available, ranging from jam to beer. He should remember that all diabetic preparations have some calorific value and must be allowed for in the patient's diet. The care of the feet, treatment of minor cuts and abrasions as well as ways of coping with hypoglycæmia, are all important matters the diabetic needs to know about, and the pharmacist is well equipped to provide that professional assistance.

The diabetic in a modern society can, with enlightened treatment, lead a normal if regulated life that can be

enriched by the intelligent co-operation of clinician, pharmacist and patient, yet much has still to be learnt about the true "inner chemistry" of the diabetic state, and the pharmaceutical industry has a big rôle to play in that research.

The treatment of diabetes since the discovery of insulin has been one of the wonders of modern medical science easily on a par with the discovery and application of the modern range of antibiotics.

FORTY YEARS OF INSULIN THERAPY

Oral Hypoglycæmic Drugs

By S. J. Hopkins, F.P.S.

THE enthusiasm that accompanied the introduction of insulin was soon tempered by the fact that the unfortunate diabetic patient had to adjust himself to the idea of a life-long course of daily injections of the drug. A search was accordingly made for orally active alternatives and attempts were also made, though unsuccessfully, when supplies of insulin became readily available, to devise modifications of insulin itself.

It had been known for a number of years that certain chemical substances, such as guanidine, had the effect of lowering the blood sugar, but they were too toxic for therapeutic use. Certain diguanidines, however, seemed to be less toxic, and eventually decamethylene and dodecamethylene diguanidine were introduced as orally active hypoglycæmic agents under the names Synthalin and Synthalin B. The two compounds had a limited success, but their use was accompanied by gastrointestinal disturbances and other side effects. Nor were the increased energy and euphoria experienced by patients receiving insulin enjoyed by patients taking the guanidine compounds. Later work showed that the drugs tended to weaken and exhaust an already damaged pancreas, and also caused some liver and kidney damage. Their use was therefore abandoned and, with the introduction of the longer-acting forms of insulin, interest in oral compounds died away. With the introduction of the sulphonamides, however, a possible new approach to the problem was revealed, though the significance was not fully appreciated at the time. During the administration of sulphanilamide and other early compounds, certain hypoglycæmic episodes were noted. When newer and less toxic sulphonamides were introduced, those effects on the blood sugar did not occur, but it was not until investigators had become less obsessed with the antibacterial properties of the sulphonamides that the hypoglycæmic action was re-examined, and interest in the possibilities of synthesising an oral equivalent of insulin revived. A wide range of compounds were examined, in particular the related group of sulphonylureas. A number of active compounds were investigated, and it was soon found that there was a link between the activity of the drug and the presence of functioning pancreatic tissue. Much of the work was done with the compound known as BZ55, also called carbutamide, and animal experiments showed that the drug had no action if the pancreas was removed completely, whereas a hypoglycæmic effect could be demonstrated if as little as one-sixth of the pancreas remained.

Results Confirmed

Clinical work soon confirmed the experimental results, and the reports attracted world-wide attention. It appeared that an orally effective antidiabetic drug had at last been discovered. Wider experience showed that carbutamide had some toxic effects, and it was soon replaced by the related compound tolbutamide (N-butyl-N'-toluene-p-sulphonylurea).

Although it was soon established that the sulphonylureas, exemplified by tolbutamide, could function only in the

presence of some active pancreatic tissue, it became clear that the drug was much more than a simple pancreatic stimulant. In spite of the great amount of work that has been carried out on the drug, its exact mode of action is still something of an enigma to the physician and the pharmacologist. Insulin is secreted by the β -cells of the pancreas, and whilst tolbutamide stimulates the production and release of insulin by those cells, it also has other effects. It appears to influence the system controlling the storage and release of glycogen by the liver, and may also depress the action of the insulin inhibitors that occur naturally in the body. The final action of the drug may well be the product of several modifying factors, and the present jigsaw may fall into place once a unifying theory of action has been found.

Tolbutamide is but one of a group of hypoglycæmic compounds, of which only a few have proved suitable for therapeutic use. Those commercially available include N-p-acetylbenzenesulphonyl-N'-cyclohexylurea, with the approved name acetohexamide (Dimelor), and N-p-chlorobenzenesulphonyl-N'-propylurea or chlorpropamide (Diabinese). Those compounds, as the systematic names indicate, are closely related to tolbutamide, and clinically the main difference is that they are effective in lower doses.

Other Active Compounds

Oral hypoglycæmic activity is found in compounds unrelated to the sulphonylureas, and which possess a different type of action. Compounds already in therapeutic use include phenformin (N'-phenethylguanide hydrochloride) available as Dibotin, and metformin, the corresponding dimethyl compound, known as Glucophage. As with tolbutamide, the mode of action of the drugs is still somewhat obscure, but it differs from that of the older drug, as the newer compounds do not appear to lower the blood sugar by increasing the activity of the pancreas. Evidence suggests that they increase the uptake and utilisation of circulating glucose, probably by an action on the peripheral cells, and in that way their action may be regarded as complementary to that of any endogenous insulin released from the remaining active pancreatic tissue. As with insulin, the doses of the new compounds are related to the severity of the diabetes, but in general the dose of Glucophage ranges from 1-1.5 gm. daily, whereas that of Dibotin is lower, ranging from 50-150 mgm. daily.

Combined Treatment

Diabetes is a highly individual disease, and the response to therapy is not always predictable. Some patients do not respond well to the sulphonylureas. Others do not respond to the diguanides. But as the mode of action of these two groups is dissimilar, combined treatment occasionally evokes a more satisfactory response, and permits a greater degree of control than would be possible with any single drug. At the same time it should be remembered that the new drugs have the defects of their qualities, and may produce severe hypoglycæmia in exceptionally susceptible patients, or if the commencing doses are too high. Skin rashes and jaundice

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may also occur during treatment, and chlorpropamide and related drugs should not be used during pregnancy owing to the risk of foetal death.

In general, the oral hypoglycaemic drugs are chiefly of value in the treatment of the middle-aged late-onset type of diabetic who, if treated with insulin alone, would require but low doses and be easily stabilised. They are not usually suitable for the young diabetic with high energy requirements, or for those not easy to stabilise on insulin. The

limitations of the compounds are also revealed in cases of illness or infection, when it may be necessary to revert for a time to insulin. Within those limitations, however, the oral hypoglycaemic drugs have an assured place in therapeutics, and further research may widen their field of usefulness. It has already been shown, for example, that the prolonged use of chlorpropamide may lead to an improved carbohydrate tolerance in the younger groups of diabetics, and a controlled trial of the drug is now taking place.

FORTY YEARS OF INSULIN THERAPY

Tests in the Detection, Diagnosis and Control of Diabetes

By G. Walker, B.Sc., M.B., M.R.C.P., and C. B. Holliday, M.P.S. (Miles Laboratories, Ltd.)

IMPAIRED metabolism of glucose in diabetes results in an abnormally high concentration of glucose in the blood. When it exceeds a critical level known as the "renal threshold," glucose is excreted in the urine (glycosuria). The concentration of glucose in urine gives a rough indication of the degree by which the blood glucose exceeds the renal threshold at the time the urine was formed. In the great majority of people glycosuria indicates that the concentration of blood glucose is beyond the upper limit of normal. However, a few individuals show glycosuria when the blood glucose concentration is normal, and such cases must be distinguished from those in which glycosuria is due to an abnormally raised blood glucose level.

In patients with uncontrolled diabetes of the "severe" type the rate of breakdown of body fat is excessive, resulting in over-production of "ketones" (chiefly acetoacetate) which accumulate in body fluids and are excreted in the urine (ketonuria).

GLYCOSURIA: Older methods of testing using Fehling's and Benedict's solutions have been largely superseded by enzyme-impregnated paper strip tests (Clinistix and Test-Tape) for detection, and alkaline copper solution tablets (Clinitest) for the estimation of urinary glucose. The enzyme strips are dipped into urine, quickly withdrawn and examined for a change of colour occurring within one minute. In the presence of glucose, the tip of Clinistix reagent strip changes from white to blue and the dipped portion of Test-Tape from yellow to green.

Alkaline copper solution tablets (Clinitest) dissolve in appropriately diluted urine forming a copper citrate complex, and liberate the heat necessary to enable sugars to reduce the copper complex to cuprous oxide. The final colour of the reaction mixture depends on the concentration of reducing material in the urine, which is estimated by comparing the colour of the contents of the reaction tube with a standard colour chart.

KETONURIA: Acetest reagent tablets are based on the Rothera nitroprusside test. A drop of urine is placed on the tablet, and the development of a lavender-purple colour within 30 seconds indicates a positive result. The colour is compared with the chart provided and indicates the concentration of "ketones" present.

Use of Tests

DETECTION AND DIAGNOSIS: Enzyme strip tests are ideal for the purpose because they are simple to use, sensitive and specific for glucose. In most instances a negative test is sufficient to eliminate diabetes as the cause of the patient's symptoms. It has recently been recognised that many older people may be diabetic for months or years before the condition is eventually diagnosed. The results of mass screening

studies with enzyme strip tests suggest that there are approximately as many unknown as known diabetics in the United Kingdom. It is important to identify them because treatment may retard the development of several incapacitating complications of the condition.

Some Indication of Urgency

Follow-up tests with Clinitest and Acetest reagent tablets on urines giving positive reactions with an enzyme strip test provide some indication how urgently further investigation is required. Persons with heavy glycosuria and more than a trace of ketonuria require immediate follow-up. Irrespective of the degree of glycosuria it is necessary to confirm the diagnosis of diabetes with one or more blood glucose estimations. In diabetes detection drives, it has been found that only one out of four persons showing glycosuria by enzyme strip tests is diabetic.

CONTROL: Treatment is aimed at correcting as completely as possible the complex metabolic abnormalities characteristic of diabetes. The most direct index is blood glucose concentration, which it is important to keep within normal limits. Measurement of blood glucose is a laboratory procedure, and can therefore be done only occasionally. However, an approximate indication of the blood glucose level may be obtained from the degree of glycosuria, and may be determined by the patient himself as often as necessary. In patients in whom the renal threshold is normal (the great majority) satisfactory control is indicated by the occurrence of not more than occasional traces of glycosuria.

The frequency and timing of tests performed by the patient depends on the type of treatment given, and on the degree of control achieved. When control is satisfactory one or more tests may be made on one to three days weekly. By contrast, it is usually necessary, during periods of poor control, to make several tests daily until satisfactory control is achieved.

Patients treated by diet, alone or with orally active hypoglycaemic drugs, should test their urine after the evening meal, when the blood sugar is usually higher than at any other time of the day. If the tests are negative, or show only traces of glycosuria, treatment is satisfactory. If more than occasional traces of glycosuria are found, additional tests are performed before breakfast and before the evening meal to give further information on the degree of control and to indicate if there is the need for modification of treatment.

In insulin-treated patients, tests are usually performed before each of the three main meals and before going to bed. The dose of insulin is adjusted in accordance with the results of tests performed when the preparation or combination used is exerting its maximum hypoglycaemic effect. The

dose is satisfactory if the test shows not more than an occasional trace of glycosuria. Heavier glycosuria indicates the need to increase the dose. The insulin requirement of many patients varies from time to time, and those who have been instructed by their physicians to adjust the dose according to the results of urine tests have the best possible chance of establishing the prolonged periods of good control that are so important in delaying the onset and reducing the severity of the serious complications of long-standing diabetes.

The results of tests performed at other times of the day and recorded by the patient enable the physician to decide whether or not the type of insulin or combination of insu-

lins is satisfactory for the particular patient and if a change is necessary, the pattern of glycosuria indicates how it should be made.

Except in patients treated with phenformin, who may become ketotic in the absence of glycosuria, test for ketonuria are only necessary when there is heavy glycosuria. That is particularly likely to occur in insulin-treated patients suffering from an intercurrent infection. The appearance of ketonuria is a warning that the diabetic state is dangerously out of control, and that adjustment of treatment is urgently necessary. Few patients need make routine tests for "ketones," but all those treated with insulin should have a supply of reagent tablets for use in emergencies.

FORTY YEARS OF INSULIN THERAPY

Insulin Packaging

By B. Garforth, Ph.D., F.R.I.C. (Deputy production manager, Boots Pure Drug Co., Ltd.)

THE wide range of insulin preparations now available is unique in one respect. It is probably the only example of a potent, sterile medical product which is, in the majority of cases, self-administered by patients, who vary in age from childhood to old age. That has had an important bearing on the developments that have taken place in packaging insulin.

The earliest presentation was a sterile solution of unmodified insulin, a substance sensitive to alkali; hence great care was needed in obtaining the right kind of glass for the production of vials. The now familiar "neutral" glass was not always so reliable, and at one time every vial was filled with an indicator solution and allowed to stand overnight.

Insulin has always been presented to the user in vials containing many doses, making it necessary to have a closure able to be pierced several times by a hypodermic needle and at the same time self-sealing against the ingress of bacteria. Bulbous rubber caps were first used, slipped over the moulded neck of the vial. Unless the caps were held firmly on the vial there was the danger that a patient might inadvertently inject too much air into the vial before withdrawing the dose, and that could blow the cap off. Lacquers were tried, then viscose caps and rings. Today most insulin preparations are sold in vials sealed with rubber plugs held securely in place with appropriately coloured anodised aluminium rings. Even this has its problems. It is necessary to provide as big an area as possible of relatively thin rubber for introducing the needle, and still to have sufficient at the edges to ensure a good seal.

A Major Problem

The quality of the rubber used has always been a major problem, for insulin is sensitive to many of the ingredients found in ordinary industrial rubber. Although a filled rubber was originally used, it was replaced by a latex type containing the very minimum of vulcanising and accelerating agents, and no filler or pigment. So important is the quality of the rubber that during the 1939-45 war, despite the serious shortage of rubber, insulin suppliers were given a high priority on available high-grade latex. The rubber problem is still not solved. Attention is being directed to finding a suitable rubber, inert to insulin, with mechanical properties suitable for automatic insertion and capping in the highly developed, rapid and accurate filling machinery now in use. Modern packaging requirements have also influenced the design of the glass containers; both the 5-mil and the 10-mil vials are identical in height and neck finish.

Labelling

Between 1923, when insulin was first marketed, and 1936 only unmodified or "plain" insulin was available, so that labelling did not present a big problem, it being necessary only to distinguish the different strengths of the solution. Ordinary black-on-white labels were sufficient. Later a simple colour code was introduced, the labels and cartons being buff for 20 units/mil, blue for 40 and green for 80. From the beginning the actual product which the patient received was called "insulin" and, though the practice still persists, the product should more correctly be labelled "injection of insulin."

When in 1936-37 a derivative, protamine zinc insulin, with a much delayed action was put on the market it was considered necessary in the interest of safety, although the product was a cloudy suspension, to make the packages look different, even under conditions of poor illumination. A two-colour diagonal design was introduced, retaining the colours that denoted strength of solution, and adding pink for the protamine.

The principle was easily extended when the clear solution of globin insulin was introduced in the early 1940's, the identifying colour chosen being orange. Difficulties arose when, in 1951-52, no less than four different new derivatives were issued, all of them suspensions but differing in their medical properties. The result is a range of fifteen colour combinations which, whilst still achieving the prime purpose of differentiation between varieties and strengths, has a somewhat less sombre appearance than is usually found with other medical products that are in any way comparable. Standard colour cards are issued to all the manufacturers, so as to make sure that labels and cartons are printed with accurate colour matching from one printing run to the next. That is an important aspect of safety and one that helps to ensure that the diabetic patient is not likely to be confused by batch variations.

The sale of insulin products is governed by the Therapeutic Substances Act, and vial labels must show, in addition to the proper name of the product, the strength, batch number and licence number of the manufacturer. Other information, such as the manufacturer's name and address, dates of manufacture and expiry, and nature and quantity of the added antiseptic, is usually printed on the carton. Great care is taken to ensure that all labels and cartons are correctly printed, and during sterile filling and subsequent packaging operations elaborate checking procedures ensure that the right product gets into the right carton.

Self-help for Diabetics: The British Diabetic Association

By James G. L. Jackson (Secretary-general of the Association)

An appeal was made through the national Press in 1933 for funds to support the building of a diabetic clinic at King's College Hospital, London. The response was such that a group of diabetics and physicians interested in the disease felt that there must be some way of utilising the obvious sincere desire for mutual help that existed amongst diabetics. In 1934 Mr. H. G. Wells, the novelist, and himself a diabetic, wrote a further letter to *The Times* inviting diabetics all over the country to form an association of and for diabetics. The formation of the British Diabetic Association dates from the publication of that letter, and today there are over 25,000 members, each of whom receive the quarterly journal, *Balance*, which provides recipes and authoritative articles on the disease. The Association arranges summer holiday camps for diabetic children and runs two homes at which elderly people may be accepted for short-term holidays. Special insurance schemes are arranged for diabetics, and the whole field of employment, insurance and emigration is watched most carefully to ensure that diabetics are not discriminated against. Analyses of diabetic products are scrutinised to ensure that they are suitable for inclusion in the diabetic diet; hints on food exchanges are given, and the Association's "Complete Cookery Book for Diabetics" (price 6s.) contains

over 250 recipes especially designed for the diabetic diet to help add variety to meals. Local branches of the Association provide opportunities for diabetics to meet and hear lectures and talks, and give local help to diabetics.

The establishment of 230 diabetic clinics has progressed through the interest of the Association. Recently, the British Standard insulin syringe (B.S. 1619) has been accepted as the recommended syringe for use by diabetics, and the spirit-proof case to take it is shortly being made available under the National Health Service. Those and similar matters have been arranged in consultation with the Association, whose aim is to protect the interest of the whole diabetic community throughout the country.

Paradoxically, it is the hope of the Association that it may one day be able to put itself out of business, and to that end an appeal has been launched for £100,000 to provide financial support for current research work. Three years ago a separate section was formed to maintain and continue the interests of all physicians in the work of the Association, and biannual meetings are held at which doctors and scientists interested in the subject come together to exchange news and views about the progress in knowledge of the disease. Persons interested in becoming members of the Association should apply to 152 Harley Street, London, W.1.

A Check List of Diabetic Products

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BEER

PETER PRIME, LTD.
CARLSBERG DISTRIBUTORS, LTD.
HOLSTEN DISTRIBUTORS, LTD.

BISCUITS

Biscottes	HEUDEBERT FOODS CO., LTD.
Chocolate biscuits	...	A. A. SUPPLY CO., LTD.
Diabetic	A. WANDER, LTD.
Energen	R. M. SCOTT, LTD.
Mini-foods, ginger or coffee		ENERGEN FOODS CO., LTD.

BLANCMANGE

BREAD ROLLS, RUSKS, Etc.		DIETADE FOODS, LTD.
Energen	ENERGEN FOODS CO., LTD.
Figgerolls	WHITWORTH HOLDINGS, LTD.

BREAD RUSKS AND SLICES

Heudebert	HEUDEBERT FOODS CO., LTD.
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BREAKFAST FLAKES

Energen	ENERGEN FOODS CO., LTD.
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CHOCOLATE

Bensdorp	BENSDORP (GT. BRITAIN), LTD.
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Droste	DROSTE, LTD.
Ringer's croquetrolls, Sorbi-choc and mocha bars	...	H. RINGERS & CO.
Wander	A. WANDER, LTD.
Dextrosol	SCOTT & BOWNE, LTD.
Fructose glucose lozenges	...	SMITH, KENDON, LTD.
Glucodin	GLAXO LABORATORIES, LTD.
Vita glucose tablets	...	A. L. SIMPKIN & CO., LTD.

JAM

FRANK COOPER, LTD.
CROSSE & BLACKWELL.
ENERGEN FOODS CO., LTD.

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NELSON PRESERVING CO., LTD.
ARCHWAY LABORATORIES, LTD.
FRANK COOPER, LTD.

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Standard	FRANK COOPER, LTD.
Lime	CROSSE & BLACKWELL.
Peel-less	ENERGEN FOODS CO., LTD.

PASTILLES

Anskels (antiseptic)	...	FRANK COOPER, LTD.
Bronskels (cough)	...	CROSSE & BLACKWELL.
Diafrutes (fruit)	...	ENERGEN FOODS CO., LTD.
Fruit flavoured	...	ROSE-KIA-ORA SALES CO.
Minskels (peppermint)	...	FRANK COOPER, LTD.
Skels (fruit)	...	FRANK COOPER, LTD.

SOFT DRINKS

Britvic lemon juice	...	BRITVIC, LTD.
Lemskel crystals	...	SMITH, KENDON, LTD.

Mellajuce diabetic fruit juice and tomato juice cocktail	...	MELLAJUCE.
P.L.J. natural lemon juice	...	BEECHAM FOODS, LTD.

Robinson's Sicilian lemon juice	...	SMITH, KENDON, LTD.
Rose's diabetic squashes	...	ROSE-KIA-ORA SALES CO.

Schweppes's Indian tonic water, sugar-free	...	SCHWEPPES (HOME), LTD.
Trim	...	STRATHMORE SPRINGS, LTD.

SWEETENING AGENTS

Biskoids, liquid and tablets		BRITISH CHEMOTHEUTIC PRODUCTS, LTD.
Mini-Sax	EUCRYL, LTD.
Saccharin	various
Saxin, liquid and tablets	...	BURROUGHS WELLCOME & CO.
Sorbitol powder	...	HOWARDS OF ILFORD, LTD.
Sorbitol E syrup	...	FRANK COOPER, LTD.
Sweetex	...	BOOTS PURE DRUG CO., LTD.

IRISH REPRESENTATIVES ASSOCIATION

Annual meeting in Dublin

RESULTS of a questionnaire showed that members of the Irish Pharmaceutical and Medical Representatives' Association were in favour, by a majority of two to one of forming an independent trade union. That was stated by the president (MR. D. FLANAGAN) at the fifth annual meeting of the Association held in Dublin on April 5.

Mr. Flanagan said that members were strongly in favour of an independent union with its own negotiating licence. As soon as certain financial considerations had been resolved, they would apply for a licence before the appropriate Government department. "Our Association is registered under the Friendly Societies' Act which gives us automatic trade union status but a negotiating licence gives far wider powers of negotiation with outside bodies." "We have no immediate plans for negotiating with any body," he added, "but those matters should be clarified."

Stating that the Association continued to maintain an active contact, through representation, with a number of committees of Irish pharmacy, the president said that membership of such committees was valuable, not only for the Association but for the greater progress and prosperity of Irish pharmacy as a whole. Activities during the year had included meetings with representatives of the Pharmaceutical Society of Ireland, Irish Drug Association and Irish Commercial Travellers' Federation. Advising members to take their membership cards when calling on doctors, he said it would always be of help even in cases where they might be well known. He hoped the recent meeting with I.D.A. representatives would be one of many to their mutual advantage. It was planned to meet representatives of the Irish Hospital Pharmacists' Association and later of the Irish Medical Association.

In a tribute to the immediate past-president (Mr. J. McKenna) he said that, in his capacity as first president of the Association, Mr. McKenna had given of his undoubted ability unstintingly. His valuable experience was missed.

Dealing with the new retention fees, the president said the executive recommended their payment in full and that all who could should become members or associate members of the Society which was the *alma mater* of all pharmacists. He pointed out that the income tax allowance on the £5 5s. fee was about £1 5s. He appealed for continued support for the Society's Benevolent Fund and said it was deserving of their fullest co-operation. What he described as "a most important task in the coming year" was the recent undertaking to edit and distribute a newsletter dealing with the Association's activities. One effect he hoped it would have was to bring ex-members back to the fold.

The president concluded by stating that the Association welcomed criticism and the only condition was that it should be directed through the proper channels to the proper people. He again appealed to members to join the group voluntary health scheme and asked that all applications should be

forwarded to him at 83 Foxfield Park, Raheny.

On the motion of MR. JACKSON, seconded by MR. O'KENNEDY, the president's report was unanimously adopted. The report of the treasurer (Mr. P. J. McGleenan) revealed a sum of £133 to credit at the end of the year.

MR. M. F. WALSH (joint secretary) read a letter from the Irish Drug Association stating that for some time past members had been receiving complaints regarding prices being charged for proprietary medical preparations. In most cases that was caused by doctors being quoted incorrect prices in a medical publication distributed to them which did not take into consideration the pharmacist's professional fee. The letter requested the Association members to draw attention to the fact

that such prices did not include that fee or allow for broken bulk prices. Mr. Walsh also appealed for support for a permanent display of ethical and other laboratory drugs being arranged for the College by Professor Timoney and Mr. O'Connor.

MR. J. TRAVERS (joint secretary) in his report said twenty-seven committee meetings had been held during the year. The Association had taken an active part in the running of the successful Pharmacy Week. He congratulated Mr. Walsh on the distinction attained in being co-opted to the Council of the Pharmaceutical Society of Ireland. As there were no new candidates for the executive committee, the four retiring members (Messrs. Travers, O'Sullivan, McGleenan and Cummins) were automatically re-elected. On the motion of THE PRESIDENT, Messrs. McDermot & Co. were re-elected auditors.

A number of amendments to the rules of the Association were agreed to.

ULSTER CHEMISTS' ASSOCIATION

Monthly meeting of Executive

REPRESENTATIVES of local associations, present by invitation, attended the monthly meeting of the Executive Committee of the Ulster Chemists' Association held in Belfast on April 2. They were welcomed, from the chair, by the president (Mr. N. A. J. Anderson). The secretary (MISS A. E. STRACHAN) reported a letter received from Mr. J. C. Acheson, advising the Committee of his retirement from business, for health reasons, after fifty-two years' association with pharmacy. Mr. Acheson had been a member of the Executive Committee for many years, and president in 1948, and an appreciation of his valuable services to the Association was placed on record, with wishes expressed for improved health to enjoy a long and happy retirement. The secretary was requested to send similar good wishes to Mr. J. A. McRoberts, who had recently retired from business after fifty-three years' association with pharmacy. MR. W. J. RANKIN reported on a further meeting with the Finance Committee of the Pharmaceutical Society of Northern Ireland that he and Mr. J. C. Wellwood had attended to further discuss financial and other arrangements for the proposed office accommodation for the Association at the Society's premises at University Street, Belfast. The proposals put forward were approved, and Messrs. Rankin and Wellwood empowered to complete arrangements. THE SECRETARY reported that a meeting had been held recently with the Ulster Wholesale Chemists' Association. Many items of mutual interest had been discussed which the Wholesalers had undertaken to further examine and report back to the retailers. The items included (a) the possibility of rota service during statutory holidays; (b) supplies to price-cutters; (c) supplies to van traders; (d) leakages of goods restricted to chemists; (e) improved invoicing and complaints service. The convener of the Action Committee (MR. J. K. MCGREGOR) reported on the Committee's work. Recently a meeting had been held at Londonderry, at which the pol-

icy of the Association had been put forward and thoroughly discussed. THE SECRETARY read a letter from Pfizer, Ltd., which indicated that that company was prepared to modify its policy in Northern Ireland on the implementation of price reductions along lines suggested by the U.C.A. The company's policy in future would be (a) to give adequate warning of an impending price reduction to enable retail chemists to reduce their stocks accordingly and (b) to carefully consider an application from any chemist who feels that he will suffer hardship because of excessive stocks purchased at the old price. THE PRESIDENT said that the new policy was most acceptable and the Committee owed a debt of gratitude to Messrs. H. W. Gamble and N. C. Cooper for having carried out negotiations on behalf of the Association. Some discussion on the sale by vans of veterinary items direct to farmers took place. It was complained that certain van owners had no connection with pharmacy, yet apparently were able to procure antibiotics for re-sale. That was felt to be wrong. THE SECRETARY drew attention to new bye-laws under the Education Act regulating the employment of children under school leaving age, information about which could be obtained from the Education Authority, Belfast. The following were elected to membership:—

Mr. J. J. Kelly, 32 Monagh Road, Turf Lodge Estate, Belfast; Miss I. M. Taylor, 62 Cromac Street, Belfast (successor to Mr. J. C. Acheson). Mr. D. N. McConell, 71 Ormeau Road, Belfast (successor to Mr. J. A. McRoberts).

Present were:—Mrs. A. S. G. Watson, Miss D. Hall, Messrs. H. S. Anderson, W. H. Boyd, J. A. Brown, W. E. Cooper, B. J. Deeny, H. W. Gamble, R. Gibson, T. A. Gibson, J. Knox, W. L. McDonnell, R. A. McEwen, J. K. McGregor, J. McMillan, W. J. Moffett, M. C. Mooney, J. Paul, W. J. Rankin, C. L. G. Rattie, A. Templeton, J. C. Wellwood. Guests of the Executive Committee were:—D. Moore, East Down; N. C. Cooper, Lurgan; A. W. McDowell, W. F. Mansfield, R. J. White, Northeast Ulster; W. C. Magee, T. G. Rutledge, Omagh. An apology for absence was received from Mr. J. F. Rankin.

TRADE REPORT

The prices given are those obtained by importers or manufacturers for bulk quantities or original packages. Various charges have to be added whereby values are in many instances augmented before wholesale dealers receive the goods into stock. Crude drugs and essential oils vary greatly in quality and higher prices are charged for selected qualities.

LONDON, MAY 1: Apart from inquiries for IPECACUANHA and a few other items that remain in short supply, demand for CRUDE DRUGS continued at a low level.

Among SPICES there was renewed interest in GINGER; Jamaican No. 3 was marked up to 660s. per cwt. (an advance of 20s.) with shipment offers up 25s. Spot holders of the Cochin variety were asking 15s. per cwt. more than last week at 260s. while the replacement value was about 255s., c.i.f. The interest in NUTMEGS of the previous week was not maintained but spot prices were up 1s. 3d. lb. A change in the Brazilian cruzeiro rate had no immediate effects on the prices of Brazilian products but after a lapse of a few days MENTHOL quotations were inclined to be a little firmer. Chinese menthol, however, was down by 3s. per lb. for forward delivery and by 4s. for duty-paid material. In AROMATIC SEEDS Indian CELERY was easier following offers of new-crop for June-July shipment.

The chief feature of the ESSENTIAL OIL market was a considerable fall in the price of Chinese PEPPERMINT. With shipment offers 4s. per lb. down at 11s., c.i.f., spot holders cut their quotations by a similar amount. Ceylon CITRONELLA was reduced by three-pence per lb. and LEMONGRASS by three-halfpence.

The United Nations Olive Oil Conference in Geneva has adopted a new international agreement to replace the existing agreement when it expires on September 30. The new agreement calls for the establishing of an Olive Oil Council which is responsible for taking action aimed at the stabilisation and expansion of the world olive oil economy and for the expansion of olive oil consumption. The agreement also makes provision for the setting up of a propaganda fund which will be used for educational and advertising campaigns designed to expand world consumption of olive oil.

Among PHARMACEUTICAL CHEMICALS there were no important price changes although a few VITAMINS were lower.

Pharmaceutical Chemicals

ADRENALINE.—(Per gm.) Synthetic B.P. 1-kilo lots, 11d.; 500 gm., 1s. 1d. ACID TARTRATE, B.P., 1 kilo, 7½d.; 500 gm., 9d.

AMMONIUM BICARBONATE.—B.P. powder £54 10s. per ton; CARBONATE, £83 10s. for lump and £87 10s. for powder. All in 1-cwt. free kegs.

AMMONIUM CHLORIDE.—One-cwt. lots B.P. powder, 105s. per cwt.; technical, 55s.

AMMONIUM SULPHATE.—One-cwt. lots 10d. per lb. for B.P.C. grade.

ANEURINE HYDROCHLORIDE.—One-kilo, 112s. 6d.; 10-kilos, 110s.

ASCORBIC ACID.—One-kilo, 40s. 6d.; 10-kilos, 37s. per kilo; 25-kilos, 35s. 6d.

BROMIDES.—Crystals (per lb.):—

	1 cwt.	5 cwt.
	s. d.	s. d.
POTASSIUM	2 6	2 5
SODIUM	2 6	2 5
AMMONIUM	2 10	2 8½

Powder is three-halfpence per lb. more, packages free, carriage paid terms.

CALCIFEROL.—B.P. from 2s. 10½d. per gm. for 1-kilo lots.

CALCIUM CARBONATE.—B.P. light precipitated powder, 1-ton lots, £35 per ton in free bags, ex works.

CALCIUM CHLORIDE.—B.P.C. fused, 11½d. per lb. in 1-cwt. lots.

CALCIUM GLUCONATE.—10s. 6d. to 12s. per lb., as to quantity. SUCCINIC ACID is from 10s. 6d. to 12s. 3d. per lb.

CALCIUM PANTOTHENATE.—97s. 6d. per kilo.

CALCIUM PHOSPHATE.—B.P.C. is 1s. 5d. per lb. for 1-cwt. lots and 1s. 4d. for 5-cwt.

CHALK.—Prepared powder B.P., £22 per ton for minimum 1-ton ex works.

CHLOROPHYLL.—Water-soluble, 100 per cent. (medicinal grade), 280s. per lb.; oil soluble, 25s. per lb.

CITRATES.—Per kilo:—

	50 kilos	250 kilos	500 kilos
	s. d.	s. d.	s. d.
SODIUM†	4 9	4 3	4 0½
POTASSIUM†	4 11½	4 5	4 3
IRON AND AMMONIUM*	7 7	7 3	7 0

†Powder 6d. per kilo more. *Scales 1s. 10d. per kilo more.

CREOSOTE.—B.P. quality, ex beechwood, from 6s. 9d. to 7s. 6d. per lb.

CRESOL.—B.P. quality, 7s. 9d. per gall. in 5-gall. lots.

CYANOCOBALAMIN.—Less than 25-gm. lots, 110s. per gm.; 100-gm., 105s. per gm.

FOLIC ACID.—B.P. and U.S.P., 1-kilo lots about £23 per kilo.

HOMATROPINE.—16-oz. lots (per oz.): ALKALOID, 30s. 6d.; HYDROBROMIDE, 24s. 6d.; HYDROCHLORIDE, 28s. 6d.; METHYLBROMIDE, 25s. 6d. 1-oz. rates are 1s. 6d. per oz. above those rates.

HYDROQUINONE.—One-cwt. lots, 10s. per 1b., 1-ton, 8s. 6d.

IODIDES.—(Per kilo). Potassium, 50-kilo lots, 19s. 3d.; SODIUM, 24s. 3d. for 25-kilo lots, AMMONIUM, 44s.

IODINE.—Resublimed in less than 50-kilo lots, 25s. 4d. per kilo. Minimum delivered rate for CRUDE is 17s. 4d. per kilo.

IODOFORM.—Powder (per kilo), 51s. 6d. in 50-kilo lots; less than 50-kilos, 53s. Crystals are 3s. per lb. more.

LEAD ACETATE.—B.P. crystals, 225s. per cwt.

MAGNESIUM CARBONATE.—Per cwt. LIGHT, 129s. or 121s. for 1-ton lots; HEAVY, 175s. for 1-cwt. lots; from 130s. to 135s. for 1-ton lots.

MAGNESIUM CHLORIDE.—One-cwt. kegs, 3s. 3d. per lb.

MAGNESIUM HYDROXIDE.—B.P.C., 1-cwt. lots, 3s. 11d. per lb.; 1-ton, 3s. 6d. per lb.

MAGNESIUM OXIDE, B.P.—LIGHT, 1-cwt. lots, 3s. 10d. per lb., 1-ton, 3s. 7d.; HEAVY, 5s. 10d. per lb.

MAGNESIUM PEROXIDE.—B.P.C. (15 per cent.), 3s. 11d. per lb. for 1-cwt. lots.

MAGNESIUM PHOSPHATES: DIHYDROGEN, 1-cwt. lots, 4s. per lb.; TRIBASIC, 4s. 5d. lb.

MAGNESIUM SULPHATE.—B.P. in minimum 1-ton lots from £20 to £21 per ton according to crystal and manufacturer. Exsiccated, £56 per ton.

MAGNESIUM TRISILICATE.—(Per lb.). In 28s.-lb. packages:—28-lb., 4s. 9½d.; 1-cwt. 3s. 10d.; 5-cwt., 3s. 7d.; 1-ton, 3s. 1d.

MENAPHTHONE.—(One-kilo lots). B.P. 140s. per kilo; ACETOMENAPHTHONE, B.P., 140s.; WATER-SOLUBLE (menadione sodium bisulphite, U.S.P.), 105s.

NICOTINAMIDE.—(Per kilo). One-kilo, 38s.; 10 kilos, 36s.; 50 kilos, 34s. 6d.

NICOTINIC ACID.—One-kilo, 28s.; 50-kilos, 24s. per kilo.

NIKETHAMIDE.—Per kilo, 100s.

PARALDEHYDE.—B.P. in 12-winchester lots, 2s. 10d. per lb. (6s. 3d. kilo); 10-gall. carboys, 2s. 4d.

PILOCARPINE.—In 1-kilo lots prices are: HYDROCHLORIDE, 1,375s. per kilo; NITRATE 1,128s.

PYRIDOXINE.—One-kilo, £27 10s. per kilo; 10 kilos, £27 5s.

QUINIDINE.—For 15 kilos or 500 oz. or more:—

Home Trade	Per kilo		Per 100 oz.	
	s.	d.	s.	d.
QUINIDINE SULPHATE ...	199	1	564	6
ALKALOID cryst. ...	260	8	739	1

Prices include tins and cases and free delivery U.K.

QUININE.—1,000-oz. lots:—ALKALOID 3s. 11½d. per oz.; SULPHATE, B.P., 1932, 2s. 5½d.; SULPHATE, B.P., 1958, 2s. 8½d.; BISULPHITE, 2s. 6½d.; DIHYDROCHLORIDE, 3s. 7½d.; HYDROCHLORIDE, 3s. 3½d.; ETHYL CARBONATE, 4s. 5d.; HYDROBROMIDE, 3s. 2½d.; SALICYLATE, 4s. 1½d.

RIBOFLAVINE.—One kilo, 210s.

SALOL.—B.P.C., 9s. per lb. (1-cwt. lots).

SODIUM PANTOTHENATE.—Per kilo, 130s.

THIOGLYCOLIC ACID.—Basic rates per lb., 97-98 per cent., 26-lb. packs, 15s.; 75 per cent., 11s. 6d. AMMONIUM THIOGLYCOLATE, 40 per cent. pH 9.3 (24-lb. pack), 6s. 8d.; MONOETHANOLAMINE THIOGLYCOLATE, pH 9.9, 4 per cent., 9s. 10d. All carriage paid and subject to purchase tax.

VITAMIN A.—Synthetic. Supplied in concentrate 1 million international units per gm. as acetate or palmitate the price is £25 per kilo for one-kilo lots.

VITAMIN D.—D₃ powder for tabletting 850,000 i.u. per gm., 125s. per kilo; in oil, 1 million i.u. per gm., 67s. 6d. per kilo for 100,000 m.i.u. Crystalline: see under calciferol. D₃ in oil (1 mega per gm.), three-pence per mega for less than 1,000 megas. Crystalline, 12s. per gm. in 100-gm. ampoule.

VITAMIN E (synthetic or natural).—TOCOPHEROL ACETATE, B.P., 25 gm. to 100 gm., ninepence per gm., 100 gm. to 1 kilo, sixpence per gm., 1 kilo and under 10 kilos, £22 per kilo; 10 kilos, £21 15s. per kilo.

LONDON EXCHANGE

RATES

At the opening on Tuesday

Amsterdam...	Florins to £	10-06½-10-06½
Bombay ...	Shillings to rupee	1/5½-1/6½
Brussels ...	Francs to £	139-55-139-60
Copenhagen ...	Kroner to £	19-32½-19-32½
Frankfurt ...	D Marks to £	11-17½-11-17½
Hong Kong ...	Shillings to \$	1/2½-1/3½
Karachi	Shillings to rupee	1/5½-1/6½
Lisbon	Escudos to £	80-20-80-30
Malaya	Shillings to \$	2/3½-2/4
Milan	Lira to £	1,737½-1,738½
Montreal ...	Dollars to £	3-01½-3-01½
*New York ...	Dollars to £	2-78-2-82
Oslo	Kroner to £	19-99½-20-00½
Paris	Francs to £	13-72½-13-72½
Stockholm ...	Kronor to £	14-54½-14-55
Zurich	Francs to £	12-12½-12-12½

*Bank of England official limits. Bank rate: 4 per cent. from January 3.

Crude Drugs

ACONITE.—Spot: Spanish *napellus*, 2s. 9d. per lb.

ALOES.—Spot primes, 195s. per cwt.; shipment, 190s. to 195s., c.i.f., as to position. Curaçao, spot, 320s.; shipment, 300s., c.i.f.

ARROWROOT.—St. Vincent, superfine sifted, 1s. 6d. per lb., spot.

BELLADONNA.—HERB, 0.5 per cent. 2s. 3d. per lb., duty paid. Root, testing over 0.5 per cent., 1s. 9d. per lb.

BENZOIN.—Sumatra block, spot £18 10s. to £35 per cwt. as to quality.

CAMPHOR.—B.P. powder nominally 4s. 9d. per lb., in bond, No c.i.f. offers.

CARDAMOMS.—Aleppy greens 8s. 6d. per lb. spot; shipment, 7s. 9d., c.i.f. Seeds, spot, whole, 14s. 6d.; splits, 10s. 6d.

CASCARA.—Spot, 210s. per cwt.; shipment, 195s., c.i.f.

CHAMOMILE.—Roman-type, 1962 crop offers about 11s. per lb., Matricaria, 7s. 6d.

CHERRY BARK.—Thin natural, 1s. 8d. per lb.

CINNAMON QUILLS.—Shipment (c.i.f., per lb.) 4 O's, 6s. 11 $\frac{1}{4}$ d.; single O, 6s. 2 $\frac{1}{2}$ d.; seconds, 5s. 7 $\frac{1}{4}$ d.; quillings, 4s. 8d.

COCHINEAL.—Canary Isle black-brilliant nominal; silver-grey nominally 16s., per lb., c.i.f. Peruvian, silver-grey afloat, 11s. 9d., duty paid; forward nominal.

COCILLANA.—Bark, 2s. per lb. on the spot.

DIGITALIS.—*Purpurea* leaves, 2s. 8d. to 3s. per lb., c.i.f., as to potency.

ERGOT.—Portuguese, 9s. 3d. per lb., spot; 9s., c.i.f.

GINGER.—(Per cwt.). African, spot about 350s. Jamaican No. 3 spot, 660s. Shipment, 645s., c.i.f. Cochin, spot, 260s.; forward, 255s., c.i.f.

GUM ACACIA.—Kordofan-cleaned sorts, 155s. per cwt., spot; shipment, 138s., c.i.f.

HENNA.—Indian, spot, about 90s. per cwt.; shipment, 75s., c.i.f.

HONEY.—(Per cwt.). Australian light amber, 137s. 6d. to 142s. 6d. and medium amber, 135s. to 140s. Argentine, 150s. to 155s.; Jamaican, 130s. to 135s.; Canadian, 165s. to 170s.; Mexican, 155s. nominal; all ex warehouse.

IPECACUANHA.—Costa Rican, 88s. per lb. spot; Matto Grosso, 68s. Shipment, no offers from any source.

KARAYA.—No. 1 gum, spot 365s. per cwt.; No. 2, 280s. per cwt.

LANOLIN.—ANHYDROUS B.P. is from 170s. to 190s. per cwt. in 1-ton lots delivered, free drums.

LINSEED.—Whole, 72s. 6d. per cwt.; crushed, 102s. 6d.

LIQUORICE.—Natural root: Russian, 65s. per cwt.; Anatolian, 57s. 6d.; Persian 52s. 6d.; Sicilian 1-kilo bundles, 1s. 6d. per lb. Block juice: Anatolian from 200s. per cwt.; Italian stick from 329s. to 470s. per cwt.

MACE.—Whole, pale blade, 16s. per lb. ex wharf.

MENTHOL.—Chinese: spot, 40s. per lb. duty paid; May shipment, 35s., c.i.f. Brazilian 19s. to 19s. 6d. in bond; shipment, 18s. 6d. to 19s. 6d., c.i.f. Formosan, 28s. 6d. in bond; shipment, 27s. 6d., c.i.f.

MERCURY.—Spot ex warehouse £60 per flask of 76 lb.

NUTMEGS.—West Indian 80's, 11s. 9d. per lb. ex wharf; sound unassorted, 9s. 6d. nominal; defectives, 7s. 9d.

NUX VOMICA.—Cochin, 75s. per cwt. on the spot.

ORANGE PEEL.—Spot: Sweet ribbon, 1s. 10d. per lb.; bitter quarters: West Indian, 10 $\frac{1}{2}$ d.; Spanish, 1s. 4d.; bitter ribbon, 1s. 3d.

PAPAIN.—For shipment: East African No. 1, about 34s., c.i.f.

PEPPER.—White Sarawak spot, 3s. 3d. per lb.; shipment, 3s. 1 $\frac{1}{2}$ d., c.i.f. Black Sarawak spot, 2s. 5 $\frac{1}{2}$ d. to 2s. 6 $\frac{1}{2}$ d.; shipment, 2s. 3 $\frac{1}{2}$ d., c.i.f. Black Malabar, 320s. per cwt. spot; shipment, 277s. 6d., c.i.f.

PIMENTO.—Spot 638s. per cwt.; shipment, 580s., f.o.b.

PODOPHYLLUM.—Spot, per cwt.: *Emodi*, 250s.; shipment offers of new crop awaited; *Peltatum*, 365s. spot.

PYRETHRUM.—Extracts—partially dewaxed, 25 per cent. pyrethrins, 74s. 6d. to 65s. 6d. per lb.; decolorised dewaxed, 20 per cent., 66s. 6d. to 59s. 4d. per lb.

QUASSIA.—Spot, 57s. 6d. per cwt.

QUILLAIA.—Spot, 180s. per cwt.; shipment, 140s., c.i.f.

RHUBARB.—Supplies of good pinky rounds cleared on the spot; shipment offers scarce.

SAFFRON.—Mancha superior, 180s. per lb. spot.

SARSAPARILLA.—Jamaican native red spot, 2s. 8d. per lb.; shipment, 2s. 4d., c.i.f.

SEEDS.—(Per cwt.). ANISE.—Spanish, 270s., duty paid. CARAWAY.—Dutch, 157s. 6d., duty paid. CELERY.—Indian, 240s. spot; shipment, current crop easier at 180s., c.i.f. new crop for June-July, 162s. 6d., c.i.f. CORIANDER.—Moroccan quiet at 62s. 6d. duty paid; shipment, steady at 52s. 6d., c.i.f. CUMIN.—Iranian 165s., duty paid; shipment quoted up to 140s., c.i.f. DILL.—Indian offering at 80s., spot; shipment, 58s., c.i.f. FENNEL.—Indian, 125s., spot; shipment, new crop for May-June, 120s., c.i.f. FENUGREEK.—Moroccan quiet at 55s., duty paid; shipment, 42s. 6d., c.i.f., with small business reported. MUSTARD.—English, 45s. to 70s. according to quality.

SENEGA.—Spot, 14s. 6d. per lb.; shipment, 14s., c.i.f.

SENNA.—(Per lb.). *Tinnevelly* LEAVES, spot: Prime No. 1, 2s. 3d.; prime No. 2, 1s. 9d.; No. 3, f.a.q., 1s. 4d. PODS: hand-picked spot scarce at from 3s. 3d. to 3s. 6d., as to quality: manufacturing spot, 2s. 4d. *Alexandria* pods: Manufacturing, spot cleared: forward, 2s. 6d. to 2s. 9d. per lb. ex wharf: hand-picked from 4s. 9d. to 8s. 6d. as to quality.

SHELLAC.—F.O.T.N., 192s. 6d. per cwt.; No. 1, 207s. 6d.; F.O., 225s. to 275s.

SQUILL.—White 80s. per cwt. on the spot.

STRAMONIUM.—Continental LEAVES 85s. per cwt. spot.

STYRAX.—Spot, 22s. per lb.; shipment, 21s., c.i.f.

TONQUIN BEANS.—Para spot, 5s. 6d. per lb.; shipment, 4s. 10 $\frac{1}{2}$ d., c.i.f.; Trinidad, 7s. 6d., spot.

TRAGACANTH.—No. 1 ribbon, £132 10s. to £135 per cwt. No. 2, £125 to £127 10s. c.i.f.

TURMERIC.—Madras finger spot, 165s. per cwt. quoted: shipment May, 130s., c.i.f.

VALERIAN ROOT.—Spot: East European, 175s. per cwt.; Indian, 180s. Shipment: Continental, 172s. 6d. to 205s. 6d. c.i.f.

VANILLIN.—Rates (per lb.) are now:—5-cwt. lots, 21s. 6d.; 1-cwt., 21s. 9d.; 56-lb., 22s.; small quantities, 22s. 6d.

WAXES.—(Per cwt.): BEES.—Dar-es-Salaam, spot 465s. nominal; shipment, 440s., c.i.f. Abyssinian, spot 410s., in bond; shipment, 390s., c.i.f. Sudanese, spot, 450s.; shipment, 385s., c.i.f. CANDELILLA, spot, 465s.; forward, 460s. landed. CARNAUBA, fatty grey, spot, 315s. shipment, 297s. 6d., c.i.f.; prime yellow, spot, 655s.; shipment, 655s., c.i.f.

WITCH HAZEL LEAVES.—Spot quotations are 2s. 10d. per lb.

Essential and Expressed Oils

ALMOND.—Sweet, English expressed, 9s. 6d. per lb.; foreign, 7s.

ANISE.—Chinese, 19s. per lb., spot; shipment, 18s. 6d., c.i.f.

ARACHIS.—Spot, 2-5 ton lots naked ex-mill, £119 per ton.

BERGAMOT.—Case lots on spot from 88s. 6d. per lb. as to ester content.

CAJUPUT.—Spot from 10s. per lb.

CARAWAY.—Imported oil, 34s. per lb.

CARDAMOM.—Imported from 225s. per lb.

CASTOR.—Home produced B.P. oil, spot, £136 per ton naked ex mill (2-ton lots).

CELERI SEED.—Quotations are from 110s. per lb.

CITRONELLA.—Ceylon, spot, 9s.; shipment, 8s. 7d. per lb., c.i.f. Formosan nominally 16s. 6d. in bond; May shipment, 16s., c.i.f.; Chinese, spot cleared; May-June shipment, 16s., c.i.f.

CLOVE.—Madagascar leaf spot, 7s. 4 $\frac{1}{2}$ d. per lb., duty paid; shipment, 6s. 7 $\frac{1}{2}$ d., c.i.f. RECTIFIED 87-88 per cent., 12s. Distilled bud-oil, English B.P., 26s. lb. for 1-cwt. lots.

CUMIN.—English distilled oil, 130s. per lb.; imported, 85s.

DILL.—Imported, 33s. per lb., spot, 28-lb. tins.

EUCALYPTUS.—B.P., 6s. 6d. and 6s. 9d. per lb. on spot for 70-75 and 80-85 respectively.

GERANIUM.—Bourbon, 90s. to 100s. per lb. on the spot.

GINGER.—Imported: Jamaican, 130s. per lb.; Chinese, 72s. 6d., duty paid. English 135s. Indian 125s.

GRAPEFRUIT.—Florida, 19s. to 21s. per lb. spot.

LAVANDIN.—From 11s. to 12s. 9d. per lb. as to quality.

LAVENDER SPIKE.—Spanish, 12s. 6d. per lb. for original drums.

LEMONGRASS.—Spot, 11s. 7 $\frac{1}{2}$ d. per lb.; shipment, 11s. 6d., c.i.f.

ORANGE.—Floridian sweet oil 7s. per lb. nominal; shipment, 6s., c.i.f. South African and Rhodesian, 7s. 6d.; Israeli, 5s.; West Indian, 10s.; Spanish, 15s. to 17s. 6d., spot.

PALMAROSA.—Shipment, 62s. per lb., c.i.f.

PATCHOULI.—Penang is 22s., duty paid and 19s., c.i.f., per lb.

PENNYROYAL.—Spot, 14s. 6d. per lb., duty paid.

PEPPERMINT.—*Arvensis*: Chinese spot, 12s. 6d.; shipment, 11s., c.i.f. Brazilian spot, 6s. 3d. to 6s. 6d.; shipment, 6s. 1 $\frac{1}{2}$ d., c.i.f. *Piperita*: Italian, 48s. to 70s., spot. American from 37s. to 38s. 6d. per lb. as to make.

PIMENTO.—English-distilled berry from 150s. per lb.; imported, 32s. 6d. Rectified leaf, 19s. 6d. per lb.

SAGE.—Spanish, 7s. 6d. per lb.; Dalmatian, 18s. 6d.

SANDALWOOD.—Spot Mysore, 107s. 6d. per lb.; forward, East Indian 103s., c.i.f.

YLANG-YLANG.—Best oil quoted about 145s. per lb.

UNITED STATES REPORT

NEW YORK, APRIL 30: The market for MENTHOL remains dull and soft in undertone. RESERPINE dropped 15 cents to 75 cents per gm. KARAYA moved two cents to 47 cents a lb. Higher per lb. among ESSENTIAL OILS were NUTMEG at \$8.75, up 40 cents, and Formosan CITRONELLA at \$2.35, up 25 cents. Lower per lb. were GINGER at \$18.50, down 25 cents, and Bourbon GERANIUM at \$15, down 25 cents.

COLLECTIVE SULPHUR BUYING

Restrictive Practices Court hears details

AN agreement between members of the National Sulphuric Acid Association, who have formed a co-operative buying pool to enable them to obtain imported sulphur at a lower cost, was before the Restrictive Practices Court on April 29. Mr. D. A. Grant, Q.C., appeared on behalf of the Association on the first day of an inquiry by the Court as to whether the agreement was contrary to the public interest. The Registrar of Restrictive Trading Agreements is represented by Mr. J. F. Donaldson, Q.C. Mr. Justice Megaw is presiding.

Mr. Grant said: "This case will deal with issues which, I suggest, raise wide and important matters affecting not only the chemical industry, but maybe the industry of this country as a whole."

The agreement was different from the type of agreement which usually came before the Court because the association did not seek to impose any terms on the prices as to the sale of any goods. "All we seek to do is to enable the pool to acquire imported sulphur at the best terms available," said Mr. Grant.

"Broadly, our case is that the operation of the pool keeps the price of elemental sulphur at a lower level than it would otherwise be."

In some respects the pool claimed to

reduce the costs incurred by some of the people who imported sulphur-bearing materials and sulphur for regular purposes. Members could withdraw from the pool on giving a year's notice.

The principle of the pool's operation was that bigger buyers bought better. The members also claimed that by means of the pool they shipped imported sulphur at a lower cost.

It was not in issue, said Mr. Grant, that those rules imposed on the mem-

bers restrictions under the Restrictive Practices Act.

The rules prevented members buying any imported sulphur for acid-making otherwise than through the pool without the consent of the management committee.

"This increases our buying power," said Mr. Grant. "We buy for the whole of this country's acid industry and therefore our negotiating power is enhanced and it prevents a large supplier trying to break the pool by offering short-term attractive prices to a member who will leave the pool," he said. The hearing continues.

COMING EVENTS

Items for inclusion under this heading should be sent in time to reach the Editor not later than first post on Wednesday of the week of insertion.

Sunday, May 5

OLDHAM PHARMACEUTICAL ASSOCIATION, Annual treasure hunt. Starting from Townfield filling station, Huddersfield Road, Oldham, at 2 p.m.
ROMFORD BRANCH, PHARMACEUTICAL SOCIETY, Car rally. Starting from the Plough hotel, Navenstock Heath, Essex, at 11 a.m.

Monday, May 6

HAIRDRESSING EXHIBITION OF GREAT BRITAIN, Alexandra Palace, London, N.22. Until May 9.
INTERNATIONAL CONFERENCE ON MATERIALS HANDLING, Metropole hotel, Brighton. Until May 10.
STOCKPORT BRANCH, PHARMACEUTICAL SOCIETY, Belgrave hotel, Dialstone Lane, Stockport, at 8 p.m. Annual meeting.

Tuesday, May 7

BIRMINGHAM BRANCH, NATIONAL PHARMACEUTICAL

UNION, Chamber of Commerce House, 75 Harborne Road, Birmingham, at 7.45 p.m. Annual meeting.

CAMBRIDGE AND HUNTINGDON BRANCH, PHARMACEUTICAL SOCIETY, Owen Webb House, Gonville Place, Cambridge, at 8 p.m. Annual meeting.
DARTFORD BRANCH, PHARMACEUTICAL SOCIETY, children's room, Royal Victoria and Bull hotel, High Street, Dartford, at 8 p.m. Mr. H. W. Tomski on "Economics of Pharmacy in 1963."
MEDICAL EXHIBITION, Guildhall, Quayside, Newcastle-on-Tyne. Until May 10.

Wednesday, May 8

FOOD GROUP, SOCIETY OF CHEMICAL INDUSTRY, 14 Belgrave Square, London, S.W.1, at 6.15 p.m. Dr. J. G. Davis (chairman of the Group) on "Food Analysis and Legislation."

MANCHESTER PHARMACEUTICAL GOLFING SOCIETY, Hazel Grove golf club, Hazel Grove, Stockport, Cheshire. Contest for Ucal trophy and prize (medal).

SOUTH LONDON AND SURREY PHARMACISTS' GOLFING SOCIETY, and LONDON CHEMISTS' GOLFING SOCIETY, Royal Mid-Surrey golf club, Old Deer Park, Richmond, at 1 p.m. Stableford competition (members only).

SOUTH-WEST LONDON CHEMISTS' ASSOCIATION and BRANCH, PHARMACEUTICAL SOCIETY, Chelsea College of Science and Technology, Manresa Road, London, S.W.3, at 4.45 p.m. Pharmacy department open evening.

SWANSEA AND WEST GLAMORGAN BRANCH, PHARMACEUTICAL SOCIETY, Dragon hotel, Swansea, at 7.45 p.m. Annual meeting.

Thursday, May 9

DURHAM COUNTY BRANCH, PHARMACEUTICAL SOCIETY, Redhill hotel, Durham, at 8 p.m. Social evening.

FINCHLEY BRANCH, PHARMACEUTICAL SOCIETY. Visit to J. Lyons & Co., Ltd., Cadby Hall.

LONDON SECTION, CHEMICAL SOCIETY, lecture theatre, Royal Institution, Albemarle Street, London, W.1, at 6 p.m. Hugo Muller lecture: Professor D. H. R. Barton on "The Biogenesis of Phenolic Alkaloids."

SCHOOL OF PHARMACY, SUNDERLAND TECHNICAL COLLEGE, at 3 p.m. Extension course for hospital pharmacists. "Drugs and the Central Nervous System" (2).

Friday, May 10

BOURNEMOUTH BRANCH, PHARMACEUTICAL SOCIETY, South-western hotel, Central station, Bournemouth, at 7.30 p.m. Annual meeting.

UNIVERSITY OF LONDON, physiology lecture theatre, St. Bartholomew's hospital medical college, Charterhouse Square, London, E.C.1, at 5.30 p.m. Professor M. Dolivo (Lausanne, Switzerland) on "The Metabolism of the Superior Cervical Ganglion in Relation to Drug Action and Sensitivity to Acetylcholine."

UNIVERSITY OF LONDON, London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1, at 5.30 p.m. Dr. E. Jawetz (California) on "Problems and Prospects of Antibiotics after Two Decades."

Advance Information

INTERNATIONAL PHARMACY STUDENTS' FEDERATION, London, July 29 to August 8. Congress.

COMMERCIAL TELEVISION

Figures in these columns represent number of appearances of the "spot" during the week.

May 12-18	London	Midland	North	Scotland	Wales	South	N.E.	Anglia	Ulster	Westward	Border	Grampian	Eireann	Channel Is.	W. & N. Wales
Alka Seltzer	5	2	5	2	5	5	—	5	5	5	5	2	1	5	5
Anadin	3	3	5	7	4	2	1	1	2	1	1	—	—	—	—
Andrews liver salt	1	1	2	—	2	1	—	1	2	3	—	—	—	—	1
Angel Face lipsticks	4	—	—	—	1	—	1	1	—	1	1	—	—	—	—
Anne French products	—	—	—	—	13	—	—	—	—	—	7	2	—	—	—
Askit	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Babysoft	3	2	—	—	—	—	3	—	—	—	—	—	—	—	—
Beecham powders	4	4	4	3	3	3	4	3	3	3	3	3	—	—	—
Bisodol	5	—	—	—	—	4	—	—	—	5	—	—	—	—	—
Bristow's lanolin shampoo	2	2	3	2	2	1	2	2	2	3	2	2	—	—	—
Bunty Baby products	—	—	1	—	—	—	—	—	2	—	—	—	—	—	—
Christy's lanolin face pack	3	—	2	3	2	—	—	—	—	—	—	—	—	—	—
Delrosa rose hip syrup	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—
Dentosine	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Dentu-creme	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—
Dinneford's magnesia	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—
Dr. Wernet's powder	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—
Eno's fruit salt	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—
Ibcol	2	3	—	—	—	3	—	—	—	—	—	—	—	—	—
Immac	2	1	2	—	—	—	—	—	—	—	—	—	—	—	—
Lollymix	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Loxene shampoo	3	1	2	2	3	3	2	3	2	4	4	3	3	—	1
Milk of Magnesia tablets	3	3	3	2	3	3	3	2	2	3	3	3	3	3	3
Moorland tablets	—	—	—	—	2	—	—	2	2	—	—	—	—	—	—
Nivea creme	—	2	—	2	—	—	—	—	—	—	—	—	—	—	—
Phensic	4	6	5	4	6	4	5	4	—	6	3	—	—	—	—
Phyllosan	3	3	2	—	3	3	3	3	—	—	—	—	—	—	—
Rennies	3	3	2	2	3	3	3	2	—	2	3	3	—	—	—
Rinstead pastilles	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—
Rosedale Lano-spray	2	3	3	5	—	—	—	—	—	—	—	—	—	—	—
Salvelox	2	—	—	—	—	3	1	2	—	—	—	—	—	—	—
Sanilav	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—
Setlers	3	3	2	4	4	3	4	4	—	4	—	—	—	—	—
VOS conditioner	1	1	1	1	1	1	—	1	—	2	—	—	—	—	—
shampoo	2	2	1	2	1	2	—	2	—	2	—	—	—	—	—
spray	—	—	—	—	2	1	2	—	2	—	2	—	—	—	—
Get Set	—	—	—	—	1	1	—	2	—	—	—	—	—	—	—
Yeast Vite	—	—	—	—	1	—	—	—	—	2	—	2	2	2	2

PRINT AND PUBLICITY

PRESS ADVERTISING

ANDRE PHILIPPE, LTD., 71 Gowan Avenue, London, S.W.6: André Philippe perfumed hair lacquer. In *The Stage and Television Today*. BOWATER-SCOTT CORPORATION, LTD., Bowater House, Knightsbridge, London, S.W.1: "Paper for People" campaign for Scotties, ScotTowels and Handy Andies. In *Daily Herald*, *Daily Mail*, *Daily Express* and *Daily Mirror*.

BURROUGHS WELLCOME & CO., Euston Road, London, N.W.1: Saxon, In national and provincial newspapers and women's magazines.

DENDRON DISTRIBUTORS, LTD., 94 Rickmansworth Road, Watford, Herts: Spray-tan. In *Daily Express*, *Daily Mirror*, *Woman and Reader's Digest*.

FARLEY'S INFANT FOODS, LTD., Torr Lane, Plymouth, Devon: Farley's rusks. In *Woman*.

FASSETT & JOHNSON, LTD., 86 Clerkenwell Road, London, E.C.1: Amm-i-dent tooth-paste. In *Radio Times*.

J. C. & J. FIELD, LTD., 225 Bath Road, Slough, Bucks: Sno-mist deodorants. In *Woman*, *Woman's Own*, *Woman's Mirror*, *Valentine*, *Roxy*, *Boyfriend* and *Marilyn*.

GEVAERT, LTD., Great West Road, Brentford, Middlesex: Gevacolor film. In national and amateur photographic Press.

GILLETTE SAFETY RAZOR CO., Great West Road, Isleworth, Middlesex: Gillette "slim-twist" razor. In *Daily Mail* and national Press.

GOLDEN, LTD., Berkeley Square, London, W.1: Elnett hair-spray. In *Woman*, *Woman's Own*, *Flair*, *Honey*, *She*, *Vanity Fair*, *Modern Woman*, and *Woman and Beauty*. L'Oréal hair bleach. In *Woman*, *Woman's Own*, *Woman's Mirror* and *Honey*, Color-Glo. In women's magazines and Sunday newspapers.

LINCOLN CHEMICALS, LTD., 14a New Broadway, London, W.3: Line-o-Lin beer shampoo. In *Woman's Mirror*, *Reveille*, *Woman's Weekly* and *Weekend*.

POTTER & MOORE, LTD., Lavender House, London, E.10: Potter & Moore products. In *Woman*, *Woman's Realu* and *Woman's Own*.

PULLIN OPTICAL CO., LTD., Ellis House, Aintree Road, Perivale, Middlesex: Pen cameras. In *Bath & Wilts Evening Chronicle*, *Birmingham Evening Mail* and *Despatch*, *Blackburn Evening Telegraph*, *Blackpool West Lancs Evening Gazette*, *Bournemouth Evening Echo*, *Bradford Telegraph and Argus*, *Brighton Evening Argus*, *Bristol Evening Post*, *Coventry Evening Telegraph*, *Derby Evening Telegraph*, *Exeter Express & Echo*, *Gloucester Citizen*, *Hull Daily Mail*, *Ipswich Evening Star*, *Leeds Yorkshire Evening Post*, *Leicester Mercury*, *Liverpool Echo*, *Manchester Evening News*, *Newcastle Evening Chronicle*, *Northampton Chronicle & Echo*, *Nottingham Evening News*, *Oxford Mail*, *Plymouth Western Evening Herald*, *Portsmouth Evening News*, *Preston Lancashire Evening Post*, *Southampton Southern Evening Echo*, *Torquay Herald Express*, *W. Hartlepool Northern Daily Mail*, *Wolverhampton Express & Star*, *Aberdeen Evening Express*, *Edinburgh Evening News*, *Glasgow Evening Times*, *Newport South Wales Argus*, *Swansea South Wales Evening Post* and *Belfast Irish News*.

PYBUS, WESTHEAD & CO., LTD., 18 Sloane Street, London, S.W.1: Zestone. In national Press.

RECKITT & SONS, LTD., Hull, Yorks: Steradent. In *Radio Times*.

RONSON PRODUCTS, LTD., Ronson House, Strand, London, W.C.1: Ronson electric shavers. In *Daily Express*, *Daily Telegraph*, and *The People*.

STAFFORD-MILLER, LTD., 166 Great North Road, Hatfield, Herts: Poli-Grip denture fixative cream. In *Daily Express*, *Daily Mirror*, *News of the World*, *The People*, *Sunday Express*, *Sunday Mirror*, *Radio Times*, *Woman's Weekly* and *Glasgow Sunday Post*.

DISPLAY MATERIAL

EXCELLO LABORATORIES, 1 Cable Street, Belfast, 4, Northern Ireland: Slim-u-ettes slimming tablets. Show material and counter display units.

FILMPRESS SERVICES, LTD., 71 Grosvenor Street, London, W.1: Showcards and price lists for Duplifilm movie film duplicating service.

TRADE MARKS

APPLICATIONS ADVERTISED
BEFORE REGISTRATION

From the "Trade Marks Journal," April 18

For pharmaceutical preparations and substances; drugs for pharmaceutical purposes (5)

UNIBON, 838,265, by Uni-Chemie, A.G., Zurich, Switzerland.

For disinfectants, fungicides and insecticides, all for agricultural, horticultural, veterinary and sanitary purposes, none being for human use (5)

VIGENE, 839,070, by Vitax, Ormskirk, Lancs.

For veterinary preparations (5)

AGEMIA, 844,702, by Agrifor, Ltd., London, S.W.1.

For photographic projectors and parts (9)

PRAXIMAT TRIUMPH, 832,522, by Carl Braun Camera-Werk, Nuremberg, Germany.

For thermometers (9)

DEPENDATHERM, B837,596, by Dependable Relay Co., Ltd., London, N.W.3.

For photographic and cinematographic apparatus, etc. (9)

Device with word JENOPIK, 838,570, by Jenoptik Jena, G.m.b.H., Jena, Germany.

For surgical, medical and dental instruments and apparatus (10)

EYCO, B819,405, by East Yorkshire Optical Co., Kirkella, Yorks.

For toilet papers and toilet tissues (all being non-medicated), all for sale in the United Kingdom otherwise than for export but not excluding goods for export to the Irish Republic (16)

FASSIDS, 843,186, by Reckitt & Sons, Ltd., Hull, Yorks.

For babies' napkins of textile materials (25)

BABY DOLL, 842,290, by Bartons (Manchester), Ltd., Manchester, 1.

From the "Trade Marks Journal," April 24

For chemical products for use in agriculture, horticulture and forestry; manures (natural and artificial) (1), and for insecticides, larvicides, fungicides and pesticides; preparations for killing weeds and destroying vermin (5)

CIODRIN, 838,006-07, BIRLANE, 843,472-73, by Shell International Petroleum Co., Ltd., London, S.E.1.

For bleaching preparations for the hair, contained in bags (3)

REVLON SUPER FAST BAGS, 829,393, by Revlon, Inc., New York, U.S.A.

For non-medicated preparations in liquid form for accentuating the red tint of hair colouring preparations (3)

REVLON PURPLE DROPS, 829,394, by Revlon, Inc., New York, U.S.A.

For non-medicated preparations in liquid form for accentuating the red tint of hair colouring preparations (3)

REVLON RED DROPS, 829,395, by Revlon Inc., New York, U.S.A.

For all goods (3)

REVLON SILVER SHEEN, REVOLN LIGHT SILVER SHEEN, 829,396-97, by Revlon, Inc., New York, U.S.A.

For preparations for use in colouring, dyeing or tinting the hair (3)

REVLON COLOR CONTROL, 829,398, by Revlon, Inc., New York, U.S.A.

For hair sprays, hair dyes, colour rinses for the hair and shampoos (3)

SYMPHONY, 837,730, by D.H.L. Products, Ltd., Idle, Bradford, Yorks.

For perfumes, toilet preparations (non-medicated), cosmetic preparations, dentifrices, toilet articles (not included in other classes) and soaps (3)

GOLDEN OPINION, B838,765, by Romney Cosmetics, Ltd., London, S.W.1.

For preparations for the hair (3)

BAYROZA, 839,065, by Bayroza Co., Manchester, 21.

For perfumes, cosmetic preparations and non-medicated toilet preparations (3)

LITTLE BOY, 839,393, by Crystal Products Co., Ltd., Surbiton, Surrey.

For perfumes, toilet preparations (non-medicated), cosmetic preparations, dentifrices, toilet articles (not included in other classes), soaps, and essential oils (3)

HIGH POTENTIAL, B839,174, by Romney Cosmetics, Ltd., London, S.W.1.

For perfumes (3)

FRENETTE, 844,106, by Radontex Laboratories, Ltd., Gatley, Cheshire.

PATENTS

COMPLETE SPECIFICATIONS ACCEPTED

From the "Official Journal (Patents),"

April 18

Photographic film lubricant, Kodak, Ltd. 927,446. Photographic compositions and processes and triptycene derivatives therein, International Polaroid Corporation. 927,277.

Photographic products and processes for colour diffusion transfer, International Polaroid Corporation. 927,520.

Parenteral solution equipment, Baxter Laboratories, Inc. 927,108.

Polymeric materials, Bexford, Ltd. 927,178. Light sensitive copying paper and method of use thereof, Minnesota Mining & Manufacturing Co. 923,386.

British patent specifications relating to the above will be obtainable (price 4s. 6d. each) from the Patent Office, 23 Southampton Buildings, Chancery Lane, London, W.C.2, from May 29, 1963.

From the "Official Journal (Patents),"

April 24

Pyrazine derivatives, Soe, Farmaceutici Italia. 928,151-52.

Pharmaceutically useful sulphonylamido derivatives and process of preparing them, Chinoiin Gyogyszer es Vegyeseti Termeket Gyara Rt. 927,698.

Medicinal compositions coated with vinylpyridine polymers, Tanabe Seiyaku Co., Ltd. 927,976. Topical pharmaceutical compositions comprising steroids and flavonoids, Upjohn Co. 928,150.

Tetracycline compounds and the preparation thereof, American Cyanamid Co. 927,694.

Process for the manufacture of L-lysine or salts thereof, Stamicarbon, N.V. 927,823.

Morphinan and isomorphinan derivatives, Shionogi & Co., Ltd. 928,171.

Tetracycline compounds and preparation thereof, Chas. Pfizer & Co., Inc. 927,739.

Norandrostone compound and methods for the production thereof, Parke, Davis & Co. 928,122.

Production of purified pyrethrum extract, Pyrethrum Board of Kenya. 927,892.

Herbical compositions and compositions for the dessication of potato haulms and similar vegetation, J. D. Campbell & Sons, Ltd. 928,175.

Thiophosphoric acid esters, Farbenfabriken Bayer, A.G. 927,690.

Sheep dips, Boots Pure Drug Co., Ltd. 928,177.

Phosphorus-containing esters, Farbenfabriken Bayer, A.G. 928,147.

Dichlorofluoromethylthio group-containing compounds, Farbenfabriken Bayer, A.G. 927,834.

Iminohalo-carbonic acid thio-esters, Farbenfabriken Bayer, A.G. 927,835.

Heat sensitive copying materials, Kodak, Ltd. 927,895.

Mount for transparencies, R. T. Lewis and L. Lewis. 927,797.

Method and apparatus for printing colour transparencies, Ilford, Ltd. 927,727.

British patent specifications relating to the above will be obtainable (price 4s. 6d. each) from the Patent Office, 23 Southampton Buildings, Chancery Lane, London, W.C.2, from June 6, 1963.

CONTEMPORARY THEMES

Subjects of contributions in current medical and technical periodicals.

HYDROGEN PEROXIDE in cosmetic preparations. Amer. Perf. and Cosmetics, March.

METHICILLIN RESISTANCE in staphylococci. Lancet, April 27.

Identity of COLISTIN and POLIMYXIN E. Lancet, April 27.

PHARMACEUTICAL PREPARATIONS. Lancet, April 27.

HUMAN ANTITETANUS SERUM in the treatment of tetanus. Brit. med. J., April 27.

PARAGLYINE, HYDROCHLORIDE, AND RESERPINE. The monamine oxidase inhibitor. J. Amer. med. Ass., April 6.

SODIUM LIOTHYRONINE. Treatment of non-toxic goitre with. J. Amer. med. Ass., April 6.

PHENFORMIN THERAPY. Irreversible lactic acidosis associated with. J. Amer. med. Ass., April 6.

A SPINAL ANÆSTHETIC with long duration of action. Nature, April 27.

A NEW LOCAL ANÆSTHETIC with a long duration of action. Nature, April 27.



WANDER

THE HELPING HAND IN TB THERAPY

A. Wander Limited supply a wide variety of tuberculostatics for use in hospital and domiciliary practice throughout the Commonwealth. The Wander range gives a comprehensive choice of dosage forms in various combinations.

Two additions to the Pasinah Wander range, Pasinah-302 and Pasinah-6PH, provide greater convenience for patients and gain their closer collaboration; each gives a full daily regimen in only six cachets.

Sodium Aminosalicylate B.P.	'Aminacyl' Sodium	Cachets Tablets Powder Crystalline for injection solution
Sodium Aminosalicylate B.P. with Isoniazid B.P.	'Pasinah'	Cachets '302' " '6PH' " '10PH' " '25' " '33' " '50'

For patients intolerant to Sodium PAS

Calcium Benzamidosalicylate	Calcium B-PAS 'Wander'	Cachets Powders
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4th May, 1963

PJD/DW

TO ALL PHARMACISTS**'SEA-LEGS'-A STATEMENT**

Meclozine is contained in a number of our most widely prescribed and successful products including SEA-LEGS. In view of the suggestion of a connection existing between foetal abnormalities and meclozine we have very carefully investigated every case where the facts were open to investigation. We have also examined very extensive evidence collected by other companies issuing meclozine in other countries. These investigations have confirmed our belief in the safety of meclozine products now in use.

We are continuing with the window display scheme for SEA-LEGS in conjunction with the N.P.U. and we are pleased to report that there is evidence of considerable movement of stock through the trade.

If any evidence comes to light which alters the situation regarding any of our products you may rest assured that we as a company will ensure that all stocks are taken back and credited in full, but we do not anticipate that this will be necessary.

PETER J. DICKINSON
Marketing Division

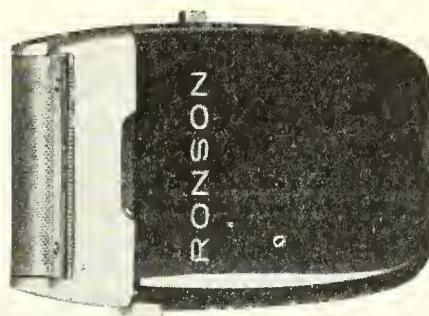
RONSON PRESENTS THE SUPERB NEW 400



**the most presentable
electric razor of the year**

Check these points about the new 400—and you'll see why Ronson tips it as the razor most likely to be given as a present this year:

- 1** Appearance: expensive-looking and up-to-date.
- 2** Packaging: luxurious gift box to show it off at its best, attract attention on any counter or in any window.
- 3** Technical superiority: wider cutting head for even faster shaves.
- 4** Completely new feature: convenient coiled flex that never twists or snarls.
- 5** Important extra: genuine coach hide travelling case just large enough to hold the razor with coiled flex and adaptor.
- 6** Price: exactly right for the present giving market, at £11.15.0.
- 7** Added advantage for you: lots of men will like the 400 so much when they see it that they will present it to themselves.



Place your orders now

Deliveries of the superb new 400 will begin in May. Now is the time to order your supplies—of this and the Ronson 21 too. The usual generous Ronson discounts apply to both. So don't stint on the ordering. Remember what a Christmas you had? How fast the Ronson razors moved? How high the profits were? Well—that was nothing compared to what's in store for you now!

What else is new in Ronson razors this year?

Plenty. For the world-famous Ronson 21 is joined with the new 400 in a startling, powerful advertising campaign. Arresting—unlike any electric razor advertising ever done before by any manufacturer.

Dominant, commanding spaces—15" x 6 columns, 13" x 5 columns and others in special positions.

Mass circulation media: frequent insertions in:
Daily Express • The People • Daily Telegraph

And a completely new set of display material to help you make on-the-spot sales.



BY APPOINTMENT TO
HER MAJESTY THE QUEEN
SUPPLIERS OF ELECTRIC RAZORS
RONSON PRODUCTS LTD

RONSON

ELECTRIC RAZORS

Do YOU know about Genexol?

Wise parents have now discovered this modern method of family planning: so simple and safe that no doctor's prescription is required.



GENEXOL, proved over ten months' testing, provides the answer to complete married happiness.

See this ad. Its aim? Pack recognition. Everywhere throughout Greater London.

When does this intensified campaign break? The week ending May 18th. And continues throughout the summer.

What is your stock position? Can you meet the new demand for Genexol? Get in touch with your stockist today. Make sure you display your Genexol sign tomorrow.

W. J. RENDELL LIMITED

Manufacturing Chemists · Hitchin · Hertfordshire

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PARACETAMOL B.P.

(listed British Pharmacopœia April 1st, 1963)

**Bush Paracetamol has always set the standard
and no change in manufacture will be
necessary. Your enquiries are welcomed.**

W. J. BUSH & CO. LTD

Ash Grove, London E.8. England

Telephone: CLissold 1234

Member of the Albright & Wilson Group of Companies

Also at: Melbourne, Auckland, Johannesburg, Montreal, Madras, Bulawayo

André Philippe
LEAD ON!

THE MOST POPULAR PERFUMED
HAIR LACQUER

The BEST VALUE in
HAIR LACQUER REFILLS!

Attractively presented in bottles in two pastel shades—
Pink and Blue

No. 12 Lacquer Refill Bottle — ECONOMY SIZE

11/4 per dozen plus 25% P.T. **Retails 1/8**

ANDRÉ PHILIPPE LIMITED
71-71B GOWAN AVENUE • FULHAM • LONDON SW6

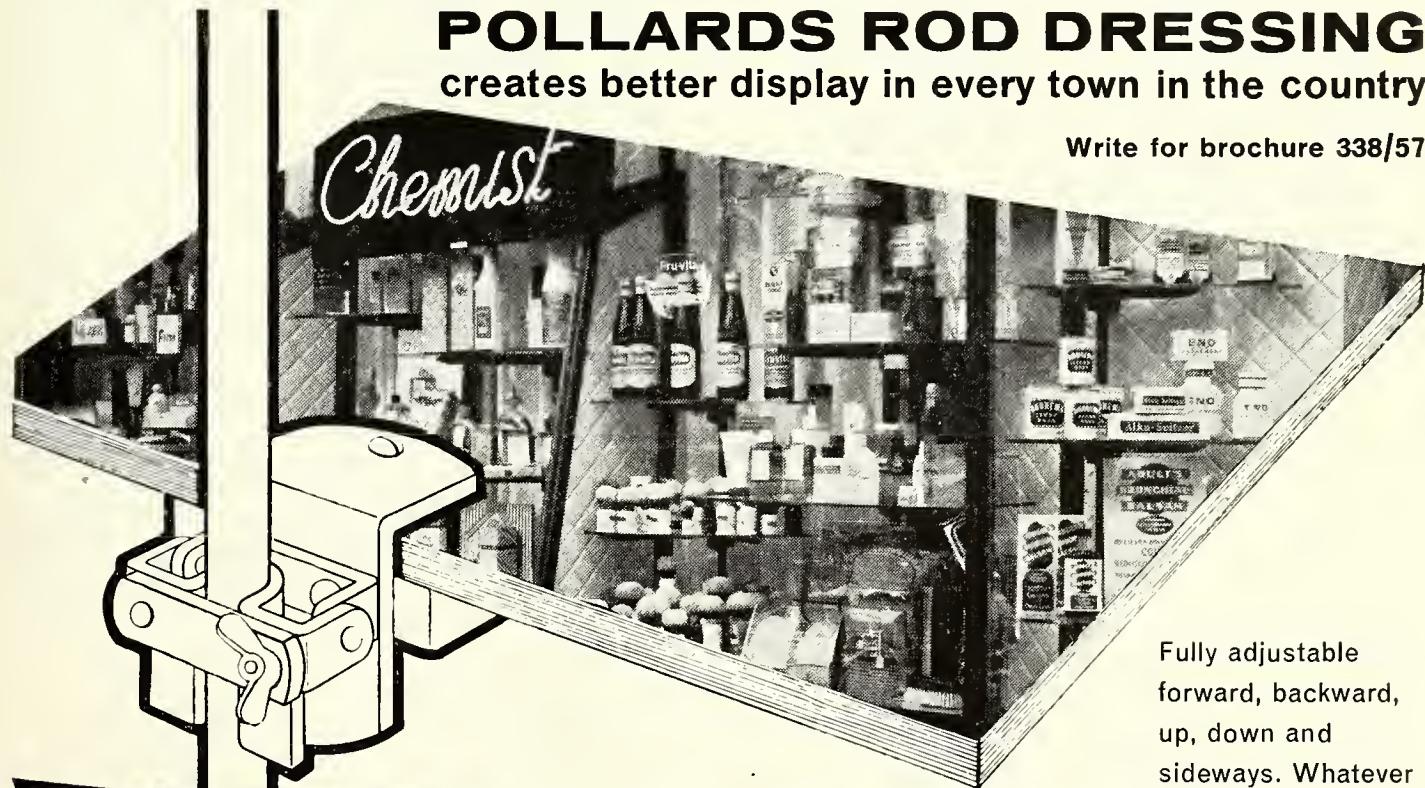
Telephone: RENown 2194/2397

We shall be pleased to send you a complete price list on request



POLLARDS ROD DRESSING
creates better display in every town in the country

Write for brochure 338/57



POLLARDS

E. Pollard & Co. Ltd.

Factory: Highbury Grove, London N.5

CAN 3033

Showroom: 29 Clerkenwell Road, London E.C.1 CLE 6701

Fully adjustable forward, backward, up, down and sideways. Whatever the goods to be displayed you create an original setting by the turn of a wingscrew.

Certor

REGD

dispensary cabinets



LABOUR-SAVING CABINET-DISPENSERS FOR THE PHARMACY

Adding to the efficiency of thousands of pharmacies today, and at the same time putting a curb on waste, are the four unique, labour-saving Certor Dispensary Cabinets—

PARCHMENT CABINET
SATCHEL CABINET
SCREW-CAP CABINET
CARTON CABINET

These cabinet-dispensers help to streamline the work of the dispensary. They save precious minutes every day in the busy dispensing season. They ensure that everything required in the preparation of prescriptions is in the best possible condition.

Paper or satchels, cartons or screw caps—you can get the item you want, in exactly the size you want, with the minimum effort. Such is the convenience of these strongly-made, well-finished Certor dispensers.

Full details on request.

Macdonald & Son Limited

PORTLAND MILL · ASHTON-UNDER-LYNE · LANCS
ONE SALISBURY SQUARE · FLEET STREET · LONDON, E.C.4

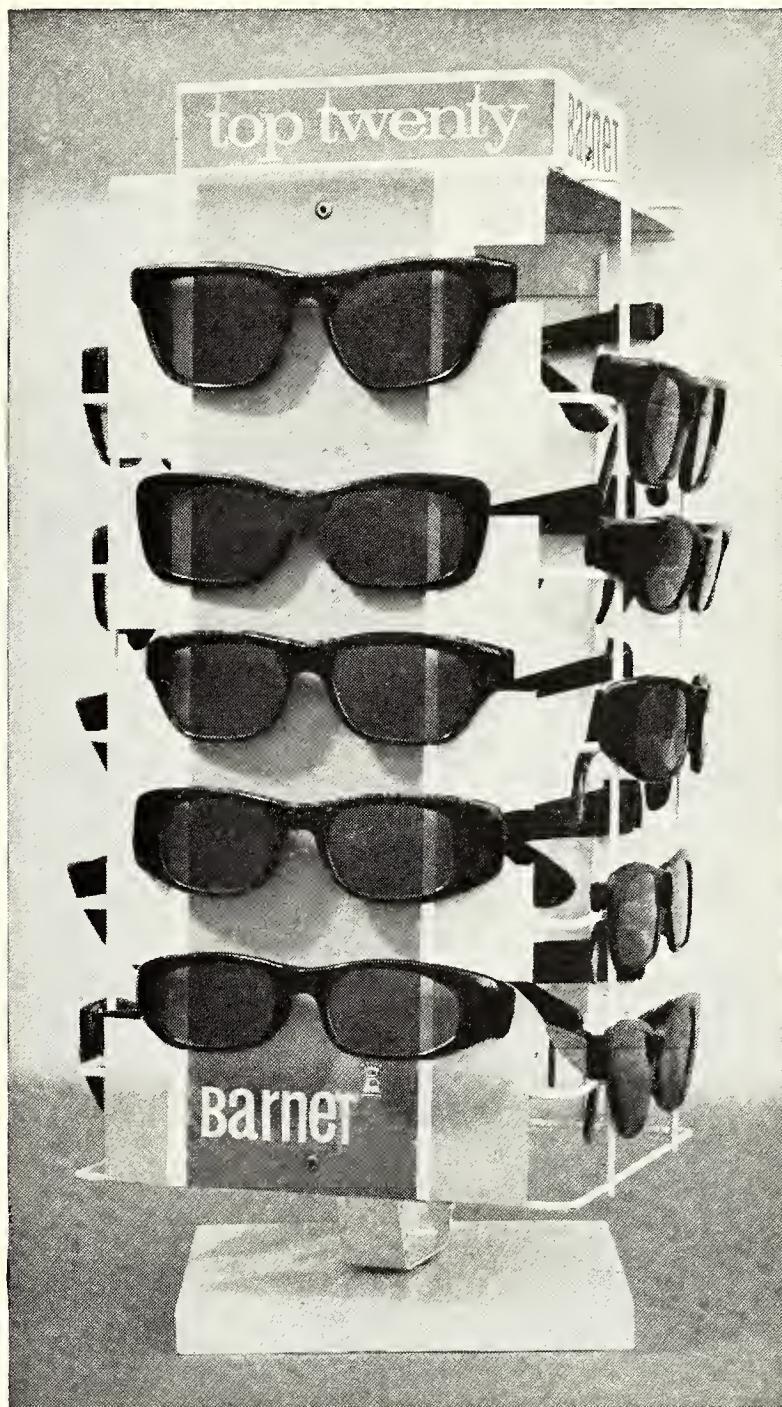




Barnet TOP TWENTY

Angular, Sultry, heavy frame, Barnet back up the all powerful trend with these up-to-the-season high style sunglasses. Each available in bright display boxes of a dozen, these models have been very carefully composed into two assortments supplied with **FREE DISPENSERS**. Top value, clearly priced, the first rays of sunshine will sell them for you.

Ask your wholesaler for full details.



TOP TWENTY SUNGLASSES

No. 8 ASSORTMENT.

One dozen of each of six models giving both a range of styles and prices from 3/6 to 5/11 each. The small new rotating stand (shown above) displays twenty sunglasses.

The six dozen complete with Free stand
Costs Retailer £11. 15. 4.
Retailers' Turnover £17. 13. 0.

HIGH STYLE SUNGLASSES

No. 9 ASSORTMENT.

Half-dozen each of six styles shown left making a low outlay assortment of 3 dozen in all. These top quality models range from 5/- to 10/6 retail with this striking FREE display.

The three dozen complete with FREE stand
Costs Retailer £8. 11. 8.
Retailers' Turnover £12. 17. 6.

E. R. HOLLOWAY SALES LTD., Bessemer Rd., Welwyn Garden City. Tel: Wel Gar 21111

Meet Pond's new hair spray **Spray'n stay**

Hair Set and Conditioner with a revolutionary formula!

(People who tried the product said: 'kept hair in place better', 'had nicer perfume', 'gave hair better appearance', 'was easier to remove', 'was less sticky')



...and to get your customers to
try Spray 'n Stay—an impressive
introductory offer:

2/- off. Aerosol Can (down from 8/1 to only 6/1)

6d off Squeeze Pack (down from 3/5 to only 2/11)

Squeeze Bottle refills—2/1

There's more:

Test marketing in the southern T.V. area has proved Spray'n Stay a top seller...

Now gay compelling 30 second T.V. spots will be seen nationally by 75% of all women throughout the country.

Result:

Great interest. Great demand. Be sure you display Pond's Spray'n Stay where your customers can see it.

Excerpt from commercial



1312
FOR THE
PRICE OF

MOORLAND DISPLAY BONUS

MOORLANDS ARE SOLD ONLY THROUGH CHEMISTS

For every dozen packets of Moorland Indigestion Tablets you order during the period of this offer you will receive one bonus packet; and for every display carton of 2 dozen 10d. single rolls you will receive a free 1/7d. packet. You pay no purchase tax on the bonus—we pay that for you!

DIRECT ORDERS ONLY

(£2. 10s. upwards) subject to your agreement to a fourteen day Counter/Window Display for Moorland Indigestion Tablets.

PLUS THESE QUANTITY DISCOUNTS:

£2. 10s	orders (excluding purchase tax) less	2½%
£5	"	5%
£7. 10s	"	7½%
£10	"	10%

Carriage paid on orders of £5 and over, assorted products

MOORLAND RETAIL PRICES:

20's roll 10d. 40's carton 1/7d. 80's carton 2/9d.

*
FOR A LIMITED
PERIOD ONLY
MAY 1 - MAY 31

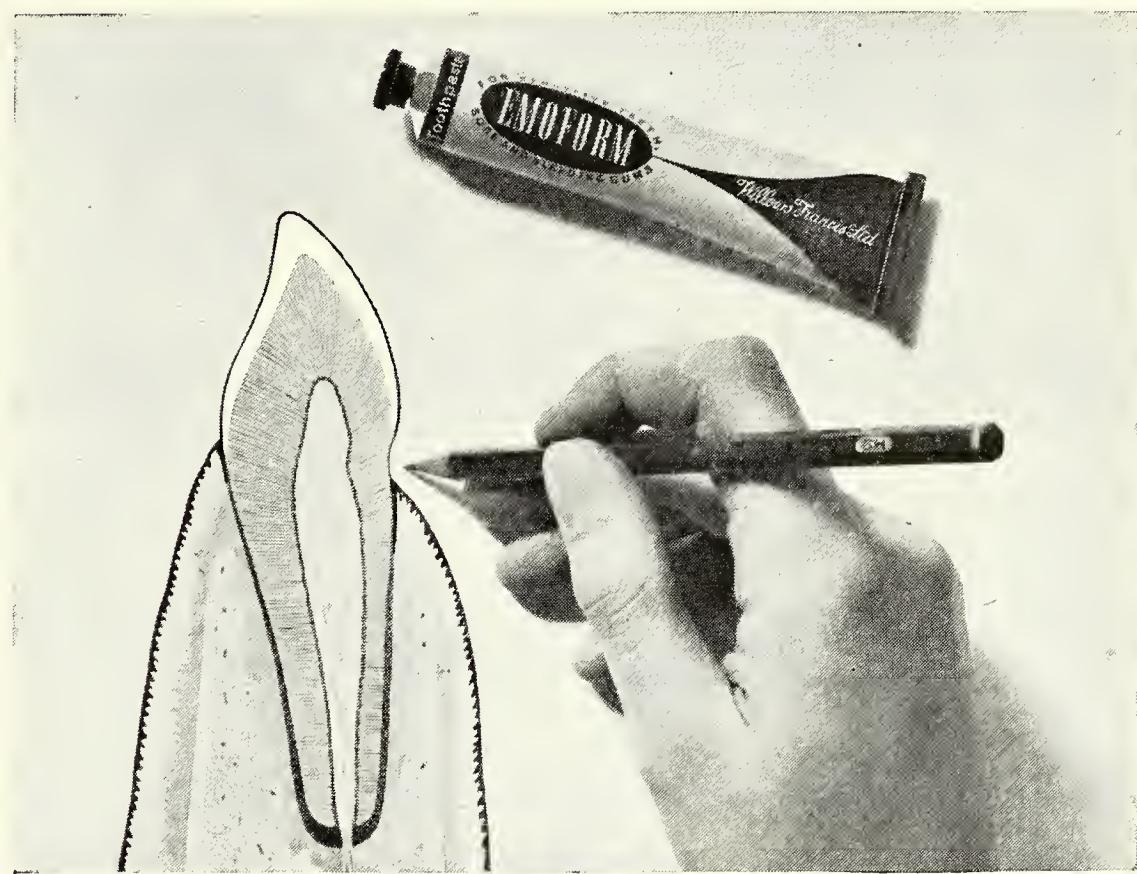


NATIONAL ADVERTISING

Moorland Indigestion Tablets—

a quick-selling line strongly backed by a current press and television advertising campaign.

W. B. CARTWRIGHT LTD., RAWDON, LEEDS



EMOFORM

Medicated Toothpaste for hypersensitive teeth, and sore and bleeding gums

A surprisingly high proportion of dental patients suffer from hypersensitive teeth, which are mostly due to erosion and recession at the gum margins.

EMOFORM is an effective treatment for hypersensitive teeth, and sore and bleeding gums. It is also a good tooth cleanser.

EMOFORM has achieved a very great success in its first year in Great Britain and thousands of dental surgeons are recommending it to their patients.

EMOFORM IS AVAILABLE ONLY FROM CHEMISTS

EMOFORM retails at 3/11d. per tube and the trade price is 26/8d. plus 6/8d. P.T. per dozen tubes. Virtually all major wholesalers maintain stocks: order now to meet the *rapidly increasing demand*.



WILLOWS FRANCIS LTD Pharmaceutical Manufacturers since 1752
ASHLEY ROAD, EPSOM, SURREY & LONDON

Incorporating

PHARMACEUTICAL MANUFACTURING COMPANY
The Local Anaesthetic Specialists



the
sharpest
story ever
told!



Schick launch the Superspeed!

The strongest story in shaver advertising! And Superspeed lives up to it... with the sharpest shaving head ever put on an electric shaver. *It's made from surgical stainless steel!* So sharp, just one shave lasts all day. And we're telling your customers!

Big bold national advertising! Nothing but biggest-circulation papers. *Daily Mirror*. *Daily Mail*. *Daily Express* and *Daily Telegraph*. Plus magazines: *Radio Times*. *TV Times* and 4 full-colour pages in *Reader's Digest*. And a 15-second commercial at peak times in Lancashire and Yorkshire.

We're telling 92% of Britain's men! Right through May, June and July... the powerful Superspeed story will be seen by 92% of Britain's men. Each one will see Superspeed's compelling message 18 times!

Tie-in with stopper displays! Stock up now! Are you ready for the big demand? Hard-selling, stopper displays will sell Superspeed in your store. Crowners. Window bills. Full-colour leaflets. *Don't lose this big chance. Order now! Stock now! Sell now!*

SCHICK SCHICK INCORPORATED (UK) LTD.
Wisborough Green, nr. Billingshurst Sussex

NEW GROUP BONUS for PHARMACEUTICAL SPECIALITIES

operating from 8th April 1963

Products Incorporated

AIDEX Burn and Wound Cream

EUPINAL Asthma and Bronchitis treatment

DENTOSINE for Mouth Hygiene

TUSSOLA Cough Mixture

THERMOID CREAM for relief of Rheumatism, Chest Troubles, Neuralgia and other nerve pains

HEALO Skin Ointment

QUINCABEL Cold Treatment

MINSTER INDIGESTION TABLETS

SANOID BABY POWDER

SANOID BABY CREAM

UNIVERSAL EMBROCATION

MINSTER BRAND Children's Cherry or Raspberry Cough Linctus

Group Bonus Plan

Three dozen or more of one item or assorted in minimum quantities of one dozen per size.

Bonus—one per dozen of the items ordered.

Bonus items free of Purchase Tax.

CUXSON, GERRARD & CO. LTD.
OLDBURY · BIRMINGHAM

INJECTION SOLUTIONS

IN AMPOULES AND R/C VIALS

STANDARD PREPARATIONS OR
YOUR OWN FORMULAE MADE
UNDER RIGID CONTROL

MODERN PLANT TO COPE WITH
SUBSTANTIAL PRODUCTION

COMPETITIVE PRICES

WE PRINT, LABEL AND PACK TO
YOUR INSTRUCTIONS

GEDEON RICHTER (G.B.) LTD.

Richter House, N.W.5 Tel.: GUL 3478-9



Surface • ANALGESIC HEALING OINTMENT

Indicated for the treatment of inflammatory
conditions of the oral mucosa

In tubes 6 grm. RETAIL PRICE **6/3** per tube inc. P.T.
(paid on importation) less **33 1/3%** Retail Discount.

MANUFACTURED BY

KREUSSLER & CO • WIESBADEN • GERMANY

Sole Distributors:-

COURTIN LTD

SURREY HOUSE • CHURCH ST • LEATHERHEAD • SURREY
LEATHERHEAD 4943.

YOUR CUSTOMERS ARE DISCOVERING THE "BONNY BOUNCER"!

More and more busy mothers with
lusty, healthy babies to mind are
discovering this unique aid to
baby welfare.

"BONNY BOUNCER" has been tried, tested,
proved and is guaranteed—famous pediatricians recommend
it, leading hospitals use it. Your customers will be asking
for "BONNY BOUNCER" . . . make
certain you can supply it! NOW'S the time
to stock up with this fast-selling baby exerciser.



Retails at 65/-.
Award-winning
design packs,
first-class display
aids, descriptive
leaflets for your
counter . . . all
available to help
you sell.

"BONNY BOUNCER"

Full details, including trade terms, from
EVANS MEDICAL LTD.
Home Sales Department, Speke, Liverpool, 24

Quinine Sulphate B.P. 1953 & 1932

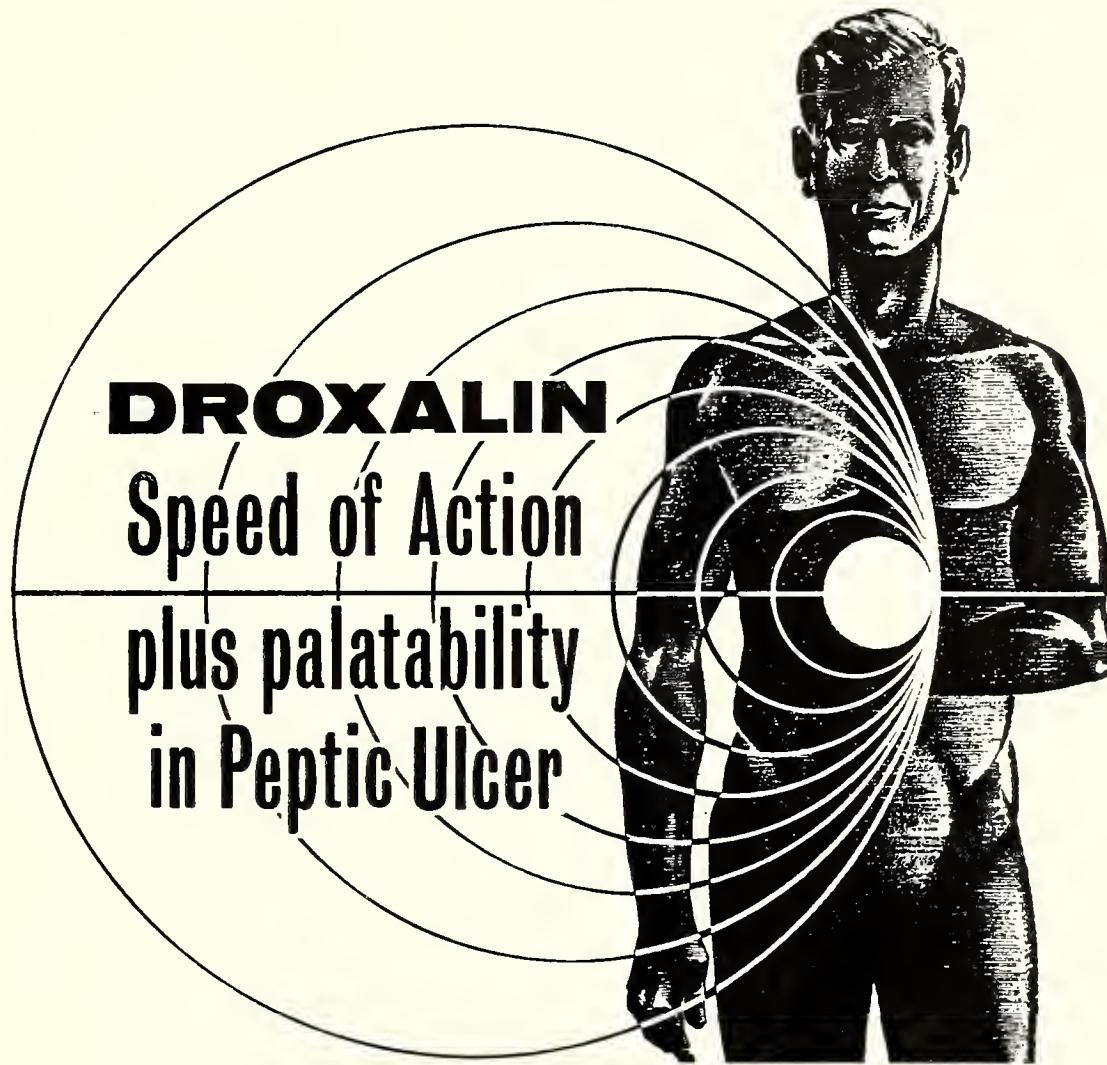


THE BRITISH
DYEWOOD COMPANY LTD.
19 St. Vincent Place,
Glasgow, C.1.

PHARMACISTS !

DISPLAY DROXALIN NOW

*Tie-up with the promotion now
under way and secure extra profits*



**AND FOR
THE RELIEF OF
HYPERACIDITY
DYSPEPSIA AND
INDIGESTION
OF PREGNANCY**

New, heavy Droxalin Medical Advertising and promotions to Doctors mean more Droxalin prescriptions. This in turn will produce greater counter sales from repeat business by satisfied patients.

Droxalin's unique efficacy in all forms of hyperacidity allied to superior palatability is winning this Acid Adsorbent more friends every day.

Display Droxalin on *your* counter and gain extra profit from the Acid Adsorbent tablet that Doctors prescribe.

DROXALIN
REGD.

Acid Adsorbent Tablets

ACTIVE INGREDIENTS: Dried Aluminium Hydroxide Gel. B.P. 162 mg. Magnesium Trisilicate B.P. 162 mg.
PACKING & PRICE: Cartons of 30, 3/- retail and dispensing packs of 180.

THE PHILLIPS, SCOTT & TURNER COMPANY • SURBITON • SURREY

THE FARLEY W

FARLEY'S Infant Foods   have a campaign in an issue of one million copies plus $1\frac{1}{4}$ pages of monotone in **Woman** magazine on May 14. **Woman**  is the women's magazine read by $8\frac{3}{4}$ million women every week. **FARLEY'S**   for the **FARLEY** week will ensure your sales soar with a program of **FARLEY'S** Infant Foods   to remind the mothers at least half the women between 18 and 44 in the district, that they can buy **FARLEY'S** Infant Foods. Make the most of **FARLEY** week, the year's biggest sales booster ever, promoted by **FARLEY'S** Infant Foods.

EEK IN *Woman*

brought the biggest-ever
zine, $3\frac{1}{2}$ pages of full colour



an , week beginning

's greatest magazine for women,

week, so stock up with

in *Woman*  and make

ent display of FARLEY'S

women who read *Woman*  ,

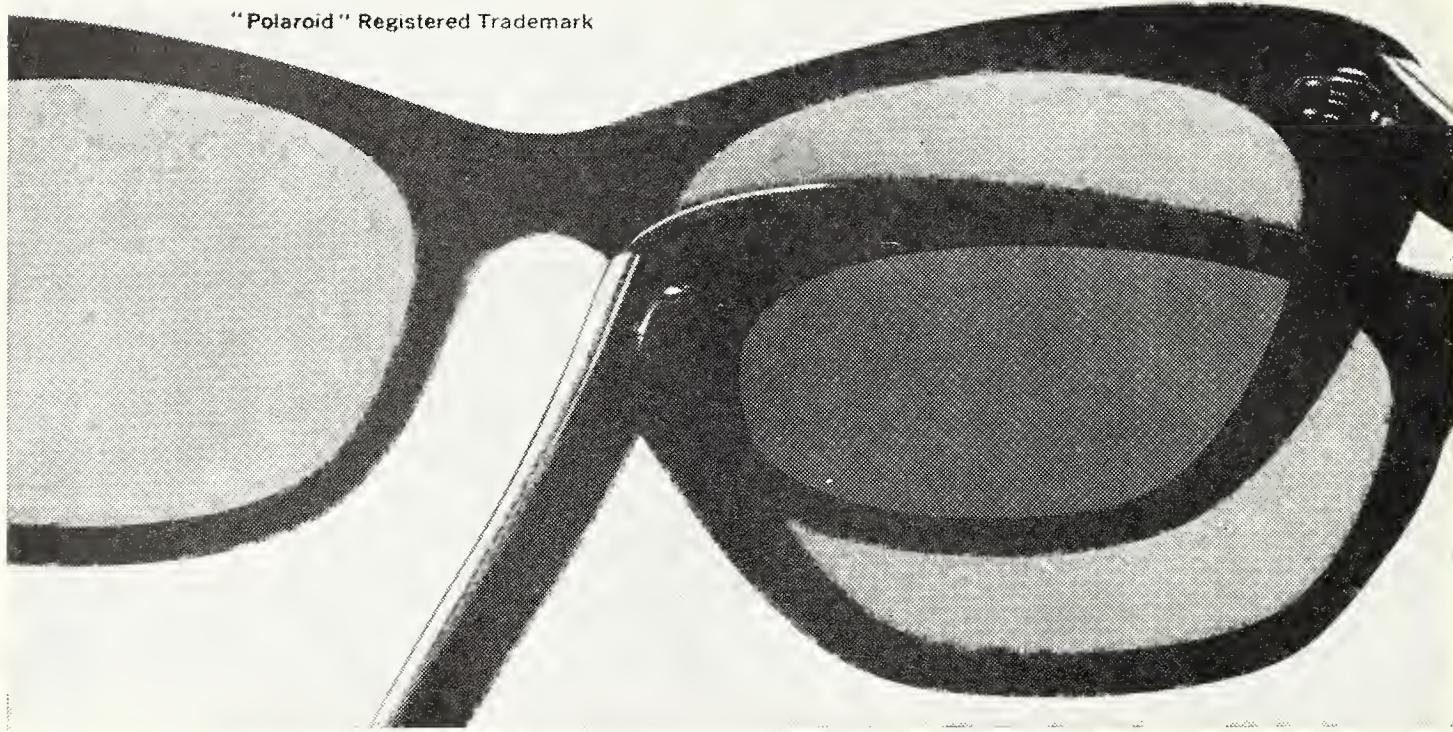
the ages of 16 and 44 in your

 from you.

Woman  May 14. The

ed by Farley's  for you.

"Polaroid" Registered Trademark



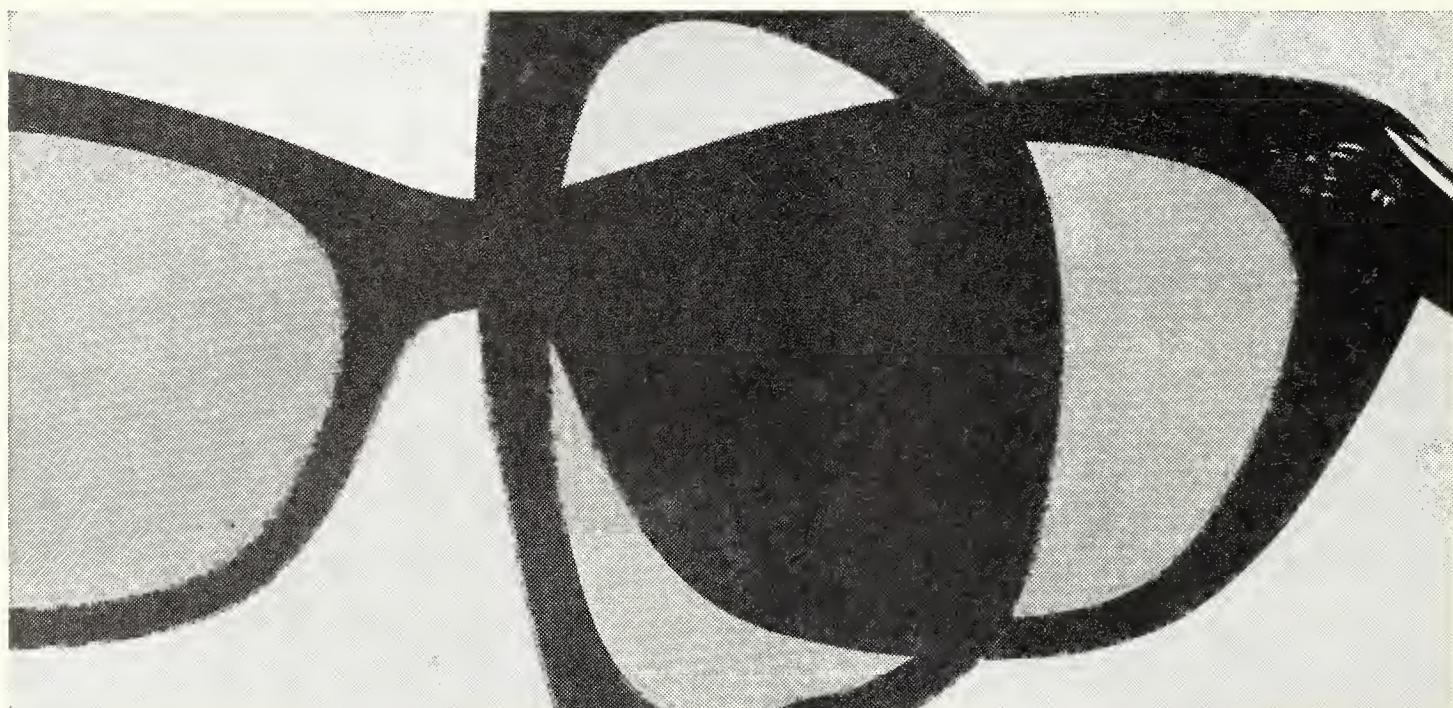
Easy to demonstrate - Easy to sell

When you cross two Polaroid sunglass lenses, no light comes through. This is the easiest test to demonstrate to your customers that Polaroid sunglasses use a unique optical principle known as polarization.

To your customers, polarization means better vision and greater eye comfort because blinding glare reflected from horizontal surfaces (snow, water, roads, sand) is wiped out. No ordinary sunglasses can make this claim.

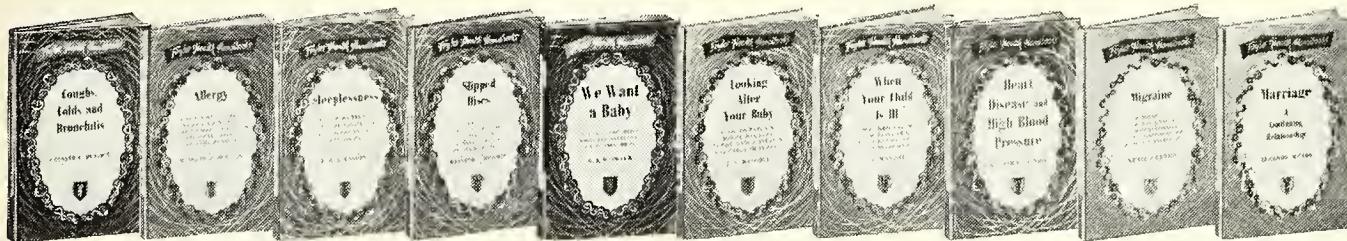
Next time a customer asks you about sunglasses, pick up two pairs of Polaroid sunglasses. Then make the test to prove they have polarizing lenses—the only kind that eliminates glare. You'll soon ring up a sale for at least one pair of Polaroid sunglasses.

POLAROID SUNGLASSES Polaroid (U.K.) Limited, Queensway House, Queensway, Hatfield, Herts.



FOYLES HEALTH HANDBOOKS

Stock them—Sell them!



RETAILING AT 4/- EACH

This series of books is written for the layman. Its aim is to explain in easily understood language the nature and causes of the many mental and physical ailments which can affect the health and well-being of the reader. It is not the intention of the books to give advice on medical treatment which should be administered by a qualified doctor only, but rather to help the reader to a better understanding of the illness or problem which affects him.

• Can be wholeheartedly recommended from the surgery or, as is becoming increasingly the case, by way of display on the chemist's counter • — The Chemist & Druggist

MIGRAINE

by Nevil Leyton, M.A., M.R.C.S., L.R.C.P.

ALLERGY

by Kenneth C. Hutchin, M.D.

WE WANT A BABY

by G. I. M. Swyer, M.D., M.R.C.P.

PLANNING YOUR FAMILY

by Sylvia Dawkins, M.B., B.S.

THE MIND OF YOUR CHILD

by Doris Odlum, M.R.C.S., L.R.C.P., D.P.M.

LOOKING AFTER YOUR BABY

by J. A. Waycott, M.B., M.R.C.P., D.C.H.

YOUR DIET & YOUR HEALTH

by Kenneth C. Hutchin, M.D.

THE CHANGE OF LIFE

by Kenneth C. Hutchin, M.D.

SLIPPED DISCS

by Kenneth C. Hutchin, M.D.

COMMON NERVOUS DISORDERS

by F. R. C. Casson, M.B., B.S., D.P.M.

COUGHS, COLDS & BRONCHITIS

by Kenneth C. Hutchin, M.D.

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by Eleanor Mears, M.B., Ch.B.

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by Leonard Lurie, M.R.C.S., L.R.C.P., D.O.M.S.

ARTHRITIS

by Alan G. S. Hill, M.C., F.R.C.P.E.

W. & G. FOYLE LTD

PUBLICATIONS DEPT.

119-125 CHARING CROSS ROAD, LONDON, W.C.2

Telephone: Gerrard 5660 (20 lines) ★ Telegrams: Foylibra, Westcent, London

Enormous success of Color-Match!

trade mark

**17 million women
will see Color-Match
advertising this year**

Are you getting your share of profit from this brilliant new market? Color-Match has rapidly established itself as the most successful hair colouring product of its kind. Here's why:

- * Color-Match colours grey hairs to match the rest of the hair—without changing its natural basic colour.
- * Color-Match is absolutely harmless. It needs no skin test. It is a liquid used like a shampoo. It is semi-permanent, lasts through 6-8 shampoos and leaves the hair in beautiful condition.

THE NEW MARKET

In this new market, not only are the over-30's taking to Color-Match, but the under-30's are using it to revive the basic colour of their hair! Put all six lovely shades of Color-Match on display—every customer of yours who has brown hair is a potential customer for Color-Match!



**The six
Color-Match
shades**

DARK BROWN · DARK WARM BROWN
MID-BROWN · MID-WARM BROWN
LIGHT BROWN · LIGHT GOLDEN BROWN

Retail price 4/11 per bottle

Trade price 33/8 per dozen

Purchase tax 8/5 per dozen

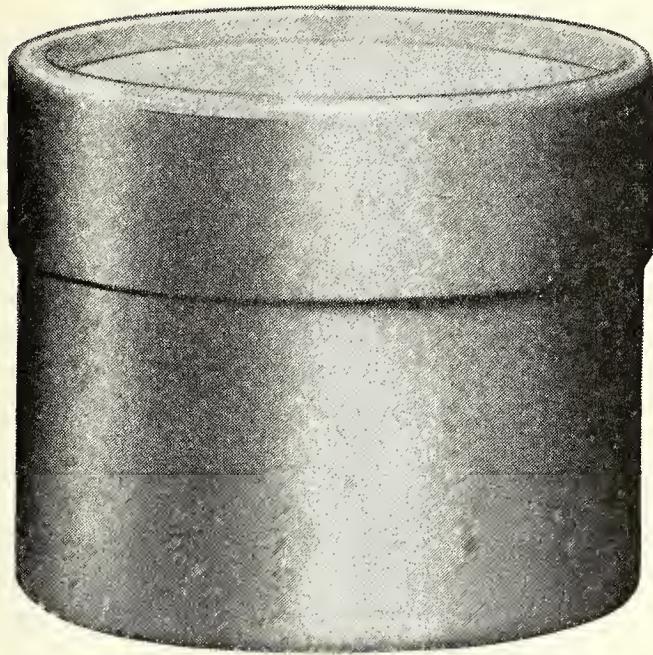
Manufactured and Distributed by:

GOLDEN LIMITED Berkeley Square House, Berkeley Square, London W.1. Mayfair 8240
Republic of Ireland enquiries to: Lilmar Pharmaceuticals Limited, Santry, Dublin.

A creation of

L'OREAL
PARIS



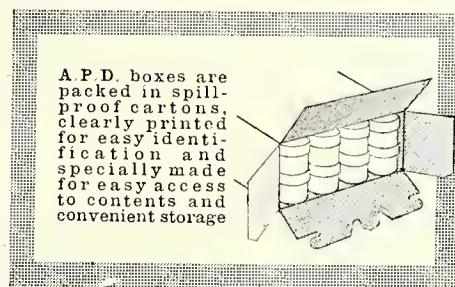


A.P.D.

(ALL PURPOSE DISPENSING BOX)

"Four into one" goes easily if you are a wise dispenser. You simply pick up a Robinsons A.P.D. (All Purpose Dispensing Box) and there, ready to hand, is a container equally suited to hold powder, tablets, ointment or cream. Robinsons of Chesterfield, who have been making boxes for the chemist since 1839, evolved the A.P.D. box to speed dispensing and also reduce the number of stock boxes held to a minimum.

A.P.D. boxes are obtainable only through your wholesaler. For sample box and descriptive leaflet, please apply direct to :

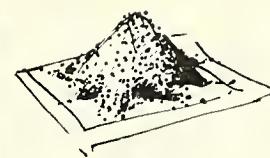


Robinsons of Chesterfield

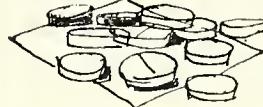
ROBINSON AND SONS LIMITED WHEAT BRIDGE MILLS CHESTERFIELD

Telegrams: "Boxes" Chesterfield. Tel. one: 2105, 11 lines.

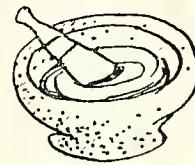
London Office: King's Bourne House, 229/231 High Holborn, London, W.C.1. Telegrams: 'Omnibox' Holb. London. Telephone: Holborn 6383



4

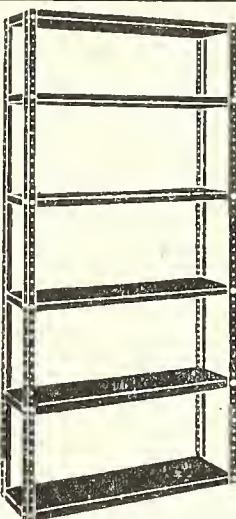


into



one





BRAND NEW STEEL SHELVING HEAVY GAUGE

FREE delivery within 14 days. N. Scotland, Ireland, I.O.M. 10% extra

71" high x 34" wide, 12" deep with 6 shelves as illustrated. C.W.O. or C.O.D. **60/-**

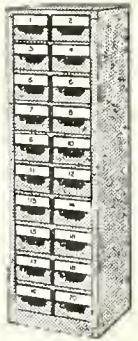
Each shelf will hold over 3 cwt. Shelves adjustable every 2". Stove enamelled dark green. White enamel units 50% extra.

Height	Width	Depth	No. of Shelves	Price	Price each 3 or more	Extra Shelves
71"	34"	9"	6	58/-	56/-	7/-
71"	34"	12"	6	60/-	58/-	8/-
71"	34"	15"	6	69/-	67/-	9/6
71"	33 1/2"	18"	6	81/-	79/-	11/6
85"	34"	12"	6	68/-	66/-	8/-
85"	42"	12"	6	86/-	84/-	11/-

HANDY DRAWER UNIT BRAND NEW

£7.15.0

C.W.O. or C.O.D.



42" high, 13" wide, 12" deep. 20 DRAWERS: 5" wide, 3" high, 11 1/2" long. Stove enamelled dark green. Direct from manufacturers. Write now for list of other sizes.

Buy direct from the manufacturers.
ROCHDALE METAL PRODUCTS
Dept. C.D., Shawclough Works, Waterfoot,
Rossendale, Lancs., ROSSENDALE 2450
Contractors to H.M. Government and United
Kingdom Atomic Energy Authority
EXPORTERS OF STEEL SHELVING

Regular sales assured
with
Shadeine
- the permanent
safe HOME tint
for GREY hair

Still the best home tint for grey hair. All natural shades. Safe and harmless. Trade Prices—1 oz. 41/8 per dozen. 2 oz. 50/6 per dozen. P. Tax 25%. Retail 5/6 and 6/10 per bottle respectively.

ALSO GOLDEN SHADEINE

For brightening mousey hair. Trade Price—2 oz. size 41/8 per dozen. P. Tax 25%. Retail 5/6 per bottle.

THE SHADEINE COMPANY LTD.
49 CHURCHFIELD RD., ACTON, LONDON, W.3

Over SIXTY YEARS' Reputation



Shadeine

FWS

For all

ETHICALS

Smith & Hill

Service
Is second to None

NOTTINGHAM

SHEFFIELD

DONCASTER

"Three houses combining to give an unrivalled service to pharmacists in the North Midlands"

Smith & Hill (Chemists) LTD.

MATILDA STREET, SHEFFIELD 1
Tel. 28383 (5 lines)

Also CARDINAL WORKS
CARDINAL STREET
NOTTINGHAM
Tel. 54347-8-9

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EXTRA-TAIL

FOR HORSE AND PONY



Complete Protection
from Flies and other insects

An established favourite with the equestrian public. AEROSOL Pack, the complete answer to the sad sight of continuous tail swishing. Spray the animals' heads and backs for instant protection. Can be used in the house, stables and byres too! A sure winner—get adequate stocks now. Retail price, Stable size 12 oz 11/6, Pony size 6 oz 6/6. Generous Trade Terms, free Sales Aids.

KALIUM PRODUCTS (REDDITCH) LTD.,

Adelaide Street, Redditch, Worcs.
TELEPHONE: REDDITCH 4433



'DISTIVIT'

oral vitamin B₁₂ peptide

helps shorten
convalescence



'DISTIVIT' TABLETS

(D A)	20 mcg.	Trade prices
(D B B)	100 mcg.	Tube of 25 2s. 8d.
(D B B)	100 mcg.	Bottle of 100 8s. 8d.
(D D C C)	1,000 mcg.	Tube of 25 7s. 6d.
(D D C C)	1,000 mcg.	Bottle of 100 21s. 10d.
		„ „ 500 100s. 6d.
		Foil pack of 4 6s. 0d.
		Bottle of 50 55s. 0d.

'DISTIVIT' ELIXIR

Each 3.5 ml. contains	20 mcg. vitamin B ₁₂ peptide
Bottle of 4 fl. oz. (approx. 114 ml.)	3s. 0d.
„ „ 40 fl. oz. (approx. 1,136 ml.)	24s. 0d.

FREE, EASY-TO-ENTER

LOXENE

HAIR CREAM

COMPETITION

Starts May 12th

6

**MINI-MINORS
MUST BE WON**

and a kiss from Liz Fraser



Yes, 12th of May — that's the day this exciting Loxene Hair Cream Competition gets under way. The day Loxene sales will start climbing still higher. For with prizes of six fabulous new Minis — each one already taxed — it's a competition thousands will want to enter! And to enter, they *must* buy a jar of Loxene Hair Cream. So get ready — make sure you have plenty in stock.

We'll be giving you . . .

£10 for those lucky retailers who have sold Loxene Hair Cream to the winners!

HEAVY ADVERTISING SUPPORT

Eye-catching advertisements giving full details of this wonderful competition will be appearing in big spaces in the

STRIKING DISPLAY MATERIAL

To make sure all your customers know about the competition, striking display material has been specially designed for use in your shop.

DAILY EXPRESS
DAILY MIRROR
DAILY SKETCH
DAILY HERALD
REVEILLE

NEWS OF THE WORLD
BELFAST TELEGRAPH
GLASGOW SUNDAY POST
THOMSON'S WEEKLY NEWS

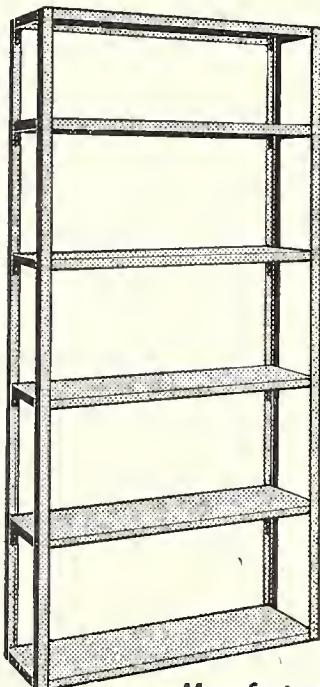


STOCK UP EARLY

Competition closes 31st July, 1963

Ask your
Loxene representative
for your supply
next time he calls.

COMPLETE STORAGE



STEEL SHELVING

Green for the rear of the shop from

£3 . 7 . 6

per bay of six shelves.
73" x 34" x 9"

White for the shop from

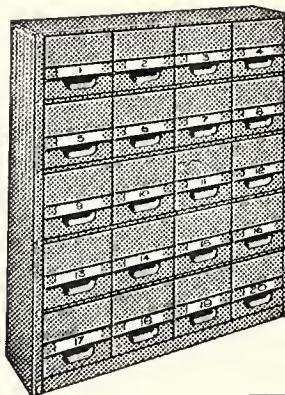
£5 . 15 . 0

per bay of six shelves.
73" x 34" x 12"

White facia strips extra.

Quotations freely given.
Complete range in our free catalogue.

Manufactured in our own works from guaranteed heavy gauge steel. Hard wear stove enamelled. Shelves adjustable every inch.



for CHEMISTS

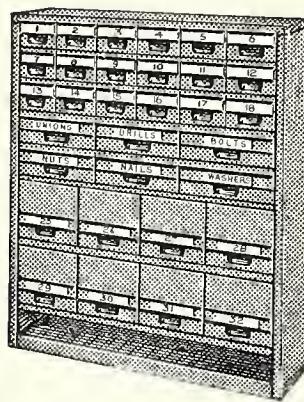
The "Storemaster"

20 drawers all 8" wide, 7" high, 10 $\frac{1}{2}$ " long, each with white identification card and transparent washable cover

Overall cabinet size : 42" high, 35" wide, 12" deep. Stove enamelled dark green.

£15 . 10 . 0 each

Many more sizes in our free catalogue.



The "Budget"

32 Assorted Drawers!

18 drawers 5 $\frac{1}{2}$ " wide, 3" high, 10 $\frac{1}{2}$ " long, one divider per drawer free and provision for 7 per drawer.

Extra dividers 6d. each.

6 drawers 10 $\frac{1}{2}$ " wide, 3" high, 10 $\frac{1}{2}$ " long each with one free divider and provision for 7 extra dividers 1/- ea.

8 drawers 8" wide, 7" high, 10 $\frac{1}{2}$ " long. No dividers.

Cabinet overall size : 42" high, 35" wide, 12" deep. Stove enamelled dark green.

£16 . 10 . 0 each

Free delivery on mainland

N. C. BROWN LTD

(Dept. C91) EAGLE STEELWORKS, HEYWOOD, LANCS. Tel. 69018
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THE VEGETABLE TREATMENT FOR RHEUMATISM

VEGETEX is a concentrated powder prepared by dehydrating selected vegetables in closed circuit at low temperature. Being alkaline, VEGETEX counteracts the over-acidity associated with rheumatic conditions.

YOU CAN RECOMMEND VEGETEX WITH CONFIDENCE

We shall be glad to send you literature on request.

Retail Prices:

40 tablets 3/10 · 80 tablets 7/3

160 tablets 12/1 · 500 tablets 30/9

MODERN HEALTH PRODUCTS LTD. Davis Road · Chessington · Surrey

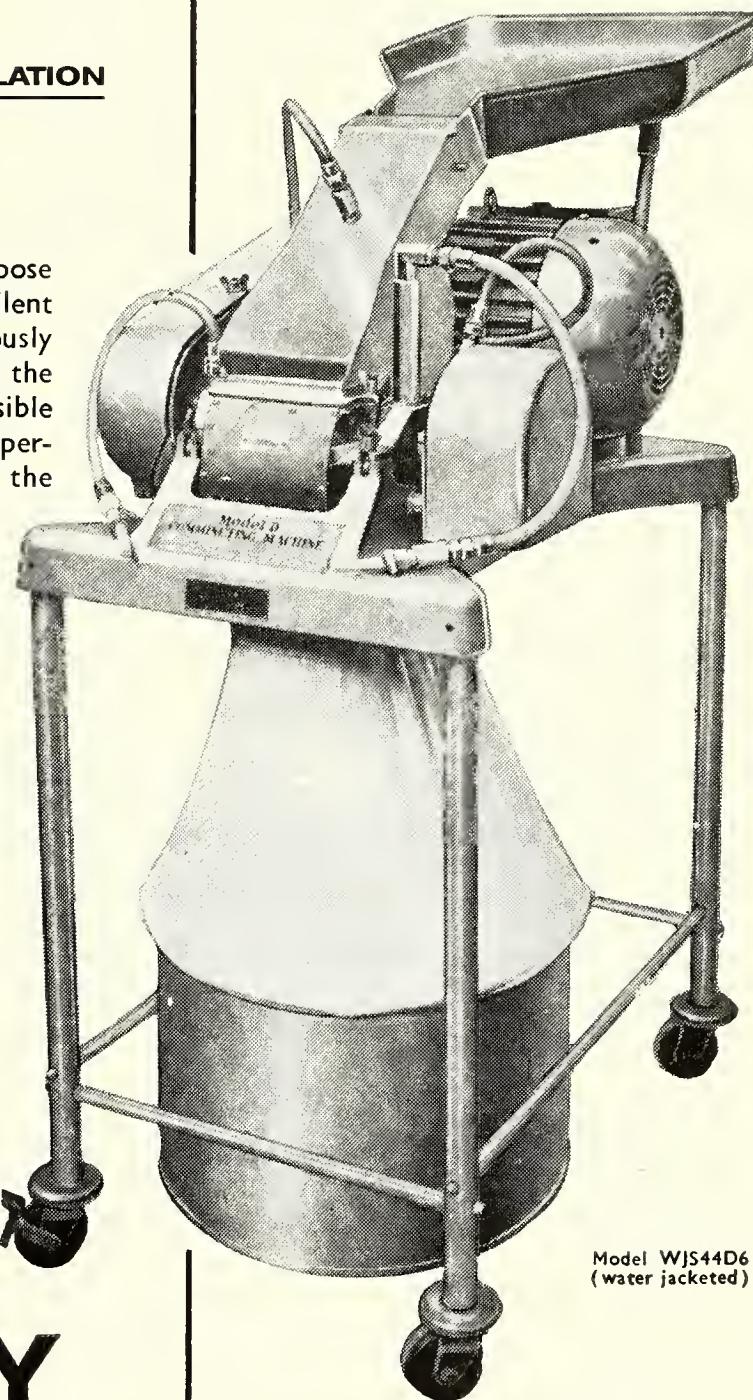
Other Modern Health Products include : BIOBALM · VECON · NATEX · GARLODEX

THE STAINLESS STEEL MACHINE WITH

**1001
USES****DRY GRANULATION • WET GRANULATION****MIXING • DISPERSION****SIZE REDUCTION**

The **Manesty Fitzmill** all purpose comminuting machine gives excellent results with many processes not previously attempted. The unique design of the Fitzmill feed throat and the reversible stainless steel comminuting chamber, permit the material to be presented to the stainless steel blades at the correct angle and in such a manner that most of the work is carried out "impact in air". It is for this reason that screens with large holes can be used and the throughput is correspondingly increased. For instance, screens with holes in the region of one inch can be used for wet granulation. An important feature of the Fitzmill is that there is no metal to metal contact in the comminuting chamber and, therefore, no danger of metal contamination in the granulation.

For wet granulation, dry granulation, pulverizing, dispersion or wetting, milling of crude ointments, sizing of crude drugs. The correct combination of screen size and speed permits materials to be processed to any desired size.



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FITZMILL

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for:—

BEDSORES

BEDSORES can be prevented by applying **THOVALINE** before the trouble starts but if already in existence will help greatly in healing.

BURNS

BURNS Unique action. **THOVALINE** is self sterile it eliminates pain and is a rapid healer.

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URINE DERMATITIS Excellent healing properties where rash exists and will prevent such trouble occurring if applied beforehand. Offensive odour is eliminated.

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VALUATIONS for all purposes
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Non Irritant BEAUTY PRODUCTS

THE SAFETY FACTOR IN
EVERY DAY MAKE-UP

Prescribed by the Medical Authorities for over 20 years as the pure and safe cosmetic for sensitive skins.

New terms give 33½% discount.

Obtainable from Messrs Sangers Ltd., and Allied Companies, through your Wholesaler, or direct from

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TABLETS

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EXPORT

MEDOPHARMA

MEDOPHARMA LTD. MANUFACTURING CHEMISTS, 158-162 TOOTING HIGH ST, LONDON, S.W.17. BAL. 2712.

GENERAL PACKAGING
STRIP PACKING · LIQUID FILLING
TO YOUR REQUIREMENTS

All nylon SUPPORT Stocking

One Chemist has sold 86 pairs in two weeks!

No rubber to perish

No prescription required

No measuring necessary

Exempt from purchase tax on the grounds of their therapeutic value. Good support, good appearance—look like ordinary nylons when worn. Sell once to your customer and repeats are automatic.

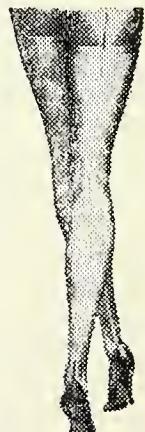
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Attractive display material.

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Send for sample, shade card, literature, trade prices etc., to :

only
19/-
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This nation-wide AMBRE SOLAIRE ADVERTISING

will reach millions every week
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More customers are coming your way for



Ambre Solaire Creme Tube

Trade price 40/- per doz.
tubes, plus tax.
Retail price 5/10
per tube.



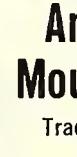
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Trade price 92/7 per doz.
aerosols, plus tax.
Retail price 13/6
per aerosol.



Ambre Solaire Bottle

Trade price 44/8 per doz.
bottles, plus tax.
Retail price 6/6 per bottle.



Ambre Solaire Mousse Aerosol

Trade price 92/7 per doz.
aerosols, plus tax.
Retail price 13/6 per aerosol.

Aerosols packed in half dozens only. 6 Mousse, 6 Oil, or 3 Oil & 3 Mousse

AMBRE SOLAIRE
gives the quickest, deepest tan without burning

NEW! Ambre Soie for home tanning

Here's a new departure in the home tanning field—a creamy mousse in an aerosol. Ambre Soie mousse is far in advance of the conventional home tanning preparations. It spreads easily and evenly to produce a glorious even Riviera tan.

Ambre Soie Trade Price 106/- per doz. aerosols plus tax
Home Tan Mousse Retail Price 15/6 per aerosol



Manufactured and distributed by GOLDEN LIMITED
Berkeley Square House, Berkeley Square, London W1. Mayfair 8240
Ambre Solaire Oil (bottle only) now available in Eire—
Trade Enquiries to: Lilmar Pharmaceuticals Limited, Santry, Dublin



The CHEMIST AND DRUGGIST

CLASSIFIED ADVERTISEMENTS

TELEPHONE CENTRAL 6565

Address Box Number Replies to: THE CHEMIST AND DRUGGIST, 28 ESSEX ST., STRAND, LONDON, W.C.2

APPOINTMENTS — 24/- per $\frac{1}{2}$ s.c. minimum and pro rata. AGENTS — AUCTION SALES — BUSINESSES FOR SALE and WANTED — CLEARANCES and WANTS — CONTRACTS — MISCELLANEOUS — PATENTS — PARTNERSHIPS — PREMISES — PUBLIC and LEGAL NOTICES — SITUATIONS VACANT. Run-on — 4/- per line (minimum 20/-). Semi-display — 24/- per $\frac{1}{2}$ s.c. minimum. Displayed with border rule, larger type faces and blocks — 60/- per s.c.i minimum. Reduced rates for one-third, one-half and full pages on application. SITUATIONS WANTED — 6/- per 18 words minimum, then 4d. per word. Use of Box No. — 2/-. Advertisements received by 4 p.m. Tuesday published same week.

OVERSEAS VISITORS

YOUNG COMMERCIAL EMPLOYEE with important position in the buying department of leading pharmaceutical wholesale and manufacturing firm in the Netherlands, holidaying in London from May 23 until June 3, wishes to meet people with the object of practising the English language and discussing mutual interests. Write: W. Zuurveld, P.C. Hooftstraat 14, Maarssen (Holland). C 5209

PRODUCTS REQUIRED FOR SOUTH AFRICA

The Managing Director of the largest group of Wholesale pharmaceutical distributors and manufacturers in the Republic of South Africa will be in London from the 18th to 31st May, 1963.

Organisations interested in making arrangements for the distribution and/or manufacture of their products under licence, are invited to make contact through THE CHEMIST AND DRUGGIST, to whom replies should be sent.

The principal products handled at present are:—

Pharmaceutical Supplies and Ethical Preparations.
Drugs and Chemicals.
Cosmetics and Toilet Preparations.
Fancy Goods.
Chemists and Surgical Sundries.
Photographic Equipment.

C 5208

PREMISES

SHOPS TO LET, Millfield Farm Estate, Leicester, with s.c., maisonette and garage. Two units remain in new parade of 10 shops serving large estate and surrounding district. Traders represented include butcher, grocer, hardware, hairdresser, Co-operative, etc. Rent from £580 per annum exclusive. Apply: Jones, Lang, Wootton & Sons, 58 St. James's Street, S.W.1, HYDe Park 6040, or H. & F. Tarrant & Sons, 16 Market Street, Leicester. C 8170

BUSINESSES WANTED

PROPRIETARY OR TOILETRY or near pharmaceutical company required by well-established progressive company. Existing staff kept—easy to work with. Reply in confidence to M.D. Box C 8163.

BUSINESSES FOR DISPOSAL

FOR SALE — NORFOLK, old-established herbal and medicinal sundries business. Good opportunity (and position) for chemist to develop business. Lock-up rented shop, new lease available. Box C 5212.

DRUG STORE AND POST OFFICE. Income £1,500 p.a. West Sussex village, freehold premises. Ilford, Goya, Max Factor and other agencies. Outstanding opening for chemist. Living accommodation and building plot. Near sea, Harbour and Downs and good schools. Price £7,500, s.a.v. Box C 5203.

OLD-ESTABLISHED PHARMACY, centre well-known Sussex town, for disposal on retirement as a going concern; with freehold shop and good living accommodation. Audited balance sheets showing average £2,000 plus, annual net profit. Shop, separate house, 4 bed.; 2 rec.; etc., excellent gdn. £5,000 for freehold, £4,000 business, s.a.v. Further details from Baguley & Partners, 21 High Street, Arundel. Tel.: 2323/4. C 5210

SOUTH MIDLANDS PHARMACY, maisonette available. New flats being built. Good supporting shops. No opposition. Lease and Goodwill £500. Fixtures and Fittings £950. S.A.V. £2,000 approximately. Cash takings £80 weekly plus N.H.S. Box C 5173.

APPOINTMENTS

BARNET GENERAL HOSPITAL, WELLHOUSE LANE, BARNET, HERTS (490 beds)

Locum Pharmacist

required for several months from 1st June, 1963. Applications to Hospital Secretary, with names of two referees. C 8196

CELL BARNES HOSPITAL, ST. ALBANS, HERTS

Chief Pharmacist

required for this modern progressive hospital for the sub-normal, within easy reach of local amenities and London. Salary scale for Category I hospital is £855 rising to £1,165 per annum. 3½ weeks annual leave. Application forms from the Group Secretary, Harperbury Hospital, St. Albans, Herts. C 8218

CENTRAL GROUP HOSPITAL MANAGEMENT COMMITTEE

Locum Pharmacist

in charge at Mildmay Mission Hospital for holiday relief duty: 17th to 29th June, 1963. Salary £23 2s. per week. Apply to Chief Pharmacist, Bethnal Green Hospital, Cambridge Heath Road, London, E.2. C 633

ENFIELD GROUP HOSPITAL MANAGEMENT COMMITTEE

Dispensing Assistant

required 3rd June for duties within the Group. Salary £230 to £580 according to age, plus London Weighting Allowance, further £50 if holding Certificate. Applications with the names and addresses of two referees to the Group Secretary, Chase Farm Hospital, Enfield, Middlesex, quoting reference 82/63. C 8197

CENTRAL GROUP HOSPITAL MANAGEMENT COMMITTEE

Locum Pharmacist

for holiday relief duty in the hospitals of the Group, 13th May to 28th Sept., inclusive. Salary 19 gns. p.w. Apply to Chief Pharmacist, Bethnal Green Hospital, Cambridge Heath Road, London, E.2. C 634

GROVE PARK HOSPITAL, LEE, S.E.12

Chief Pharmacist

Category II, £940 to £1,260 plus London Weighting allowance. Applications naming two referees to Group Secretary, Lewisham Hospital, High Street, S.E.13. C 632

LAMBETH HOSPITAL, BROOK DRIVE, S.E.11

Locum Pharmacist

required at the above hospital. Apply immediately to Hospital Secretary (further details from Chief Pharmacist. Tel.: RELiance 3804, Ext. 40). C 8216

LEAVESDEN HOSPITAL, ABBOTS LANGLEY, Nr. WATFORD, HERTS

Pharmacist (Part-time)

required at Leavesden Hospital (rate 40s. 7d. per session of four hours). The hospital is within easy reach of London by Bakerloo line or Green Line Coach. Applicants are invited to view the Department by arrangement with the Group Pharmacist (phone: Garston 2222, Ext. 30) prior to interview. Applications stating age and experience, together with the names of two referees to be sent to the Group Secretary, Leavesden Hospital, Abbots Langley, nr. Watford, Herts. C 8179

LONDON JEWISH HOSPITAL, STEPNEY GREEN, E.1

Locum Pharmacist

required from May 13th. Salary £19 19s. per week. Modern department. Every third Saturday morning off. Applications to the Chief Pharmacist (Tel.: STE. 4251). C 8184

LEWISHAM HOSPITAL, HIGH STREET, S.E.13

Senior Pharmacist

required. Applications stating age, qualifications and experience, and names of two referees to Chief Pharmacist. C 636

LONDON JEWISH HOSPITAL, STEPNEY GREEN, E.1

Pharmacist

required at above hospital from May 13th. Modern department offering good general experience. Every third Saturday morning off. Whitley Council salary scale. Applications in writing, stating age, qualifications and experience, together with the names of two referees to the Chief Pharmacist. C 8185

EDUCATIONAL

HERIOT-WATT COLLEGE,
EDINBURGH

DEPARTMENT OF PHARMACY
Applications are invited for appointment as SENIOR LECTURER in the Department of Pharmacy with a view to commencing duty on September 1, 1963. Applicants should have an Honours Degree and preferably teaching experience in Pharmaceutical Chemistry. Salary within the range £1,855—£2,175 according to qualifications and experience. The salary scales are presently under review. Further particulars and application form may be obtained from the Principal to whom completed applications should be returned not later than May 17. C 8193

LONDON COLLEGE OF
PHARMACY AND CHEMISTRY
FOR WOMEN

7 Westbourne Park Road, W.2
Established 1892

The only College in S.E. England teaching exclusively for the Assistant-in-Dispensing Examination of the Society of Apothecaries. Enrolling now for six months' full-time course for Student Dispensers under 1956 Regulations. 82 per cent. Examination successes in 1960. C 404

SITUATIONS VACANT
RETAIL (HOME)

CHEMIST COUNTER ASSISTANTS. Ladies required for London, E.C.1 and N.1. Highest salary paid in exchange for experience and loyalty. Apply in writing: Managing Director, Kendale Chemists, 51 Exmouth Market, E.C.1. C 5168

CORBY. Pharmacist required as branch manager to new shop shortly to open. Free house provided. Good salary and pension. Director Superintendent, John Kelsey, Chemists, Ltd., 21 Lime Street, E.C.3. C 5189

EXPANDING LONDON COMPANY producing pharmaceutical and toilet preparations has vacancy for young man with experience in manufacturing procedures. Applicants should give details of qualifications and experience to Production Director, 20-26 Brunswick Place, N.1. C 5204

LEADING BEAUTY HOUSE

invites applications for the posts of
REPRESENTATIVES

(1) For West End stores and other outlets in the London Area. (2) For the North West of England, covering major stores in main towns. The people we are looking for are men or women, who have had experience in the Beauty Field and, ideally, have dealt with major retail outlets. Salary negotiable depending on experience.

Ability, energy and enthusiasm are vital.

Write in confidence to Box C 8203. Our present staff know of this announcement.

MAIDA VALE. Lady assistant, experienced in cosmetics, required for small good-class family business. Salary £12. The Lauderdale Pharmacy, 7 Lauderdale Parade, London, W.9. Telephone: Cunningham 7509. C 5213

PHARMACIST ASSISTANT required mostly for dispensary. Interesting work including medical supplies and a few surgical and chemical apparatus. Progressive post, experienced staff, good conditions, three weeks' holiday. Suit young pharmacist. Apply Hamptons, 47 Northgate Street, Gloucester. C 5194

PURLEY, SURREY. Near pleasant country. New shop. Pharmacist required as branch manager. Director Superintendent, John Kelsey Chemists, Ltd., 21 Lime Street, E.C.3. C 5190

SITUATIONS VACANT WHOLESALE

Medical
Representative

Burroughs Wellcome & Co. have a vacancy in the London area for a medical representative.

Applicants, who must be pharmacists, should be between 25 and 35 years of age. Previous experience as a representative is preferable but not essential as training will be given to fit the right candidate for this interesting and progressive post.

Applications, giving full details of qualifications and experience, should be addressed to the Personnel Officer,
The Wellcome Building, Euston Road, London, N.W.1.

C 8191

BROOK, PARKER & CO. LTD.

Manufacturing, Wholesale & Export Chemists
BRADFORD, Yorks

Applications are invited for the post of **GENERAL MANAGER** of this important company. Applicants should be between 30—45 years of age, having had sound practical experience in every branch of the Pharmaceutical Manufacturing and Wholesale business.

Apply in confidence giving full details of qualification, age, experience and salary history to:—

The Managing Director,

**UNITED CHEMISTS ASSOCIATION LIMITED,
UCAL WORKS, CHELTENHAM**

C 5185

A REGISTERED
PHARMACIST

who is a Nigerian national is needed by a well-known Pharmaceutical Company. For approximately a year he will work in the London Headquarters before being appointed Medical Representative in Nigeria. Applicants should be under 30 and preferably have a British pharmaceutical qualification. Please write to Box C 8219.

BUSY CHEMICAL IMPORTERS' London office want a young assistant on the sales side. Some experience of chemical or pharmaceutical merchandising or importing necessary. Box C 5211.

EVANS, GADD & COMPANY, LIMITED, Wholesale Chemists, Exeter, require a male dispenser for their compounding department. Interesting and varied work to fulfil the special requirements of their chemist customers. Apply to: 10 Smythen Street, Exeter, Devon. C 5214

SURGICAL instrument and hospital equipment sales representative required, resident Birmingham or Midland area. Edwards Surgical Supplies, Ltd., 289 City Road, E.C.1. C 5176

TABLET MAKERS. Experienced workers or those seeking an opportunity to broaden experience in tablet production are asked to apply, in writing, outlining career to date. London area. Five-day week. Pension scheme. Box C 5202.

LEO LABORATORIES LIMITED

are planning still further expansion
and require more

MEDICAL REPRESENTATIVES
in the following territories:—

SCOTLAND, based on Edinburgh and Glasgow (2)

NORTHERN ENGLAND, based on Manchester and Tees-side (2)

EAST ANGLIA and CAMBS (1)

ESSEX and E. LONDON (1)

LONDON, SOUTH OF THE THAMES (2)

DEVON, CORNWALL and SOUTH SOMERSET (1)

WALES, based on Cardiff and Swansea (2)

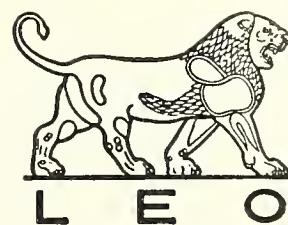
For certain of these appointments previous experience in medical representation will be an essential qualification, but keen young men, aged 25-35, with good academic backgrounds and careers in medical or allied subjects are also invited to apply.

These positions offer excellent opportunities in an expanding organisation. Good commencing salary, bonus paid on results, quality car and expenses.

Please send brief details of age, academic background and experience in strict confidence to:—

The Sales Director, Leo Laboratories Limited, 15-18, Clipstone Street, London, W.1.

C 8212



A CAREER IN



The buildings in the picture are devoted entirely to pharmaceutical research and here some 650 I.C.I. men and women are engaged in a search for new drugs that will contribute to the health and well-being of mankind.

It is essential that the fruits of their labours are presented to the medical profession by men who not only have the necessary technical knowledge but also bring with them qualities of integrity in keeping with the standards of the medical profession itself.

As a result of recent further expansion, there are vacancies for Medical Representatives in London and the Home Counties, so if you are looking for a satisfying career in a Company which believes in proper rewards for merit and loyalty and you consider you have the qualities and technical knowledge required, you should write giving brief details of your background and experience to:

Full details of working conditions and the Company's Pension and Profit Sharing Schemes will be given to those candidates selected to attend for interviews.

**The Personnel Manager/M, Imperial Chemical Industries Limited,
Templar House, 81-87 High Holborn, London, W.C.1.**

C 8199

Situations Vacant—Continued

MANAGEMENT
CONSULTANTSAppointments
DivisionHave been retained to advise on the
following appointment:

Medical Adviser

(London)

An internationally known Pharmaceutical House, engaged in the manufacture of ethical products, seek a Medical Adviser. The successful applicant, will join a team of Doctors whose duties include the initiation and maintenance of clinical trials, the training of representatives, the preparation of medical literature, and the answering of medical queries.

Candidates should not be more than 35 years of age, of British birth with a British qualification, and should have a good command of the French language; a knowledge of other languages would be an advantage.

The commencing salary will be according to qualifications and experience, but will not be less than £2,000 p.a. The post is permanent and pensionable.

Please write fully, giving details of age, experience and qualifications, in confidence, quoting:

Ref. W.1537,
**HAROLD WHITEHEAD
& PARTNERS LTD.,**
65, New Cavendish St.,
London, W.1.

C 8206

SITUATIONS WANTED

BOURNEMOUTH, POOLE AREA. Locum available early June. Simmons, 7 Mount Parade, Cockfosters, Herts. C 5205

AGENTS

FIRST-CLASS AGENTS WANTED by André Philippe, Ltd., for their expansion programme. Applications invited—top man required especially for London. Phone or write André Philippe, Ltd., 71/71B Gowen Avenue, Fulham, S.W.6. RENown 2194/2397. C 5191

INDEPENDENT ACTIVE AGENTS needed to sell stylish house gloves and baby pants in Southern Counties, Midlands and N.E. England. Local interviews arranged. Write stating territory and live accounts to Box C 5196.

SOLE AGENTS required to develop sales of competitive and attractive line of French hairbrushes and plastic toilet goods. Outstanding opportunity for first-class salesman with sound connections. Send full details, stating area and commission required to Sole Distributors for U.K. Box C 5175.

AGENCIES—EIRE

OLD-ESTABLISHED Dublin company shortly moving to new factory and warehouse premises, are interested to hear from U.K. firms who wish to manufacture and/or market their products to chemists or grocers. Box C 5119.

WANTED

CASH FOR CAMERAS!!! Best prices paid for German and Japanese apparatus that has become obsolete or is "sticking." Quantity unlimited. The Camera Co., 320 Vauxhall Bridge Road, S.W.1, VIC. 5483. C 627

WANTED: Surplus cameras, enlargers, cine cameras and projectors, photographic equipment of every description. Surplus and outdated film and paper, large or small quantities. Phone, write or call: Spears (Dept. CD), back Watling Street, Shudehill, Manchester, 4. Telephone: BLAckfriars 9432 (5 lines). Bankers: Midland Bank, Ltd. C 613

WE PURCHASE surplus and redundant stocks of every description especially packing material. Spot cash settlement. Reliance Trading Company, 75 Fairfax Road, London, N.W.6. KIL. 0581. C 599

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J. W. Aylward,
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C 8204

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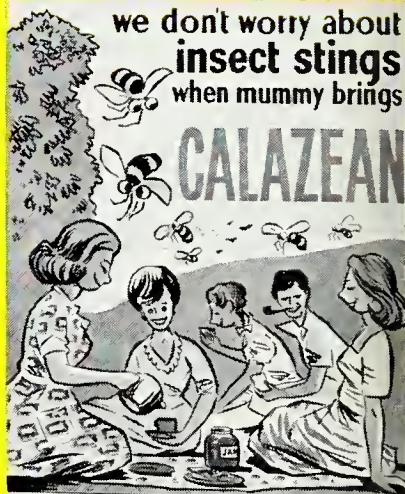
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